

SUPPORTABILITY STRATEGY for the COMMON GROUND STATION

AN/TSQ-179 (V)2



(Final Draft)

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SUPPORTABILITY STRATEGY

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Common Ground Station (CGS)
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FOREWORD

This is the Joint Surveillance Target Attack Radar System (Joint STARS) Common Ground Station (CGS) Supportability Strategy (SS) . It describes the CGS system and establishes logistics requirements, procedures and milestones for the Full-Rate Production (FRP) CGS life cycle. The CGS V2 evolved from the CGS AN/TSQ-179(V)1 Production and uses its design, analyses and logistic data as the basis for CGS FRP.

This SS was developed from the SS for the LGSM Low-Rate Initial Production (LLRIP) which was produced to the CGS design. It served as the prime contractor's Integrated Support Plan (ISP) for CGS/LLRIP production and guide CGS supplemental supportability analyses that document resultant logistic technical data. Major ILS efforts during CGS PFDOS build on LGSM-EMD design and its associated technical data to create logistic products to support CGS/LLRIP materiel fielding. The CGS enhances LGSM-EMD design to add and improve supportability, functionality and weight characteristics. This SS establishes procedures to be used for CGS Preplanned Product Improvement (P3I).

All CGS/LLRIP mission equipment is shelter mounted and carried on the mission enhanced High Mobility Multi-purpose Wheeled Vehicle (HMMWV). A second HMMWV carries ancillary equipment, crewmembers and their personal equipment. Both HMMWVs tow trailers with 10 KW generators.

The CGS V2 provides the following functional capabilities:

- Joint STARS Interface via data-link and on-the-move Satellite Communications
- Unmanned Aerial Vehicle (UAV) Video/Telemetry Interface
- Commander's Tactical Terminal (CTT)
- Apache Longbow Interface via Integrated Data Modem (IDM)
- Global Positioning System (GPS) Interface
- UHF (VRC-83) and VHF (SINCGARS) Radio
- Secure voice/FAX over STU III
- Voice Communications Non-Secure over Mobile Subscriber Equipment (MSE)
- Secondary Image Dissemination (SID)
- U2 EMTI
- Airborne Reconnaissance Low (ARL-M
- MTI and SAR
- PREDATOR van-to van EO/IR video and Telemetry
- Additional CTT3 UHF capability-SOS, Echo, ARL-EMT
- Advanced Imagery Capabilities – SIDS Analysis and Dissemination, Image Product Library (IPL)
- JTA-A Level 5 Compliance

- Significant Trainer Upgrades
- Multiple Operator Tools-
 - Radar Shadow Masking and Mission Planning Aides
 - TCTA tools and mapping improvements

Hardware Additions:

- Additional Process Boards for Server
- Upgrade to RAI D Disk Array Mass Memory
- Additional Video Suite Equipment
- KIV-7 HSA Encryptor
- RF Switching Group
- KG-84A Encryption Device

The CGS uses standard Army support concepts at three echelons of support; Unit, Direct Support (DS) and Depot. This SS establishes logistic interfaces with design development, system engineering, Human Factors Engineering (HFE), and test activities.

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SECTION 1. GENERAL

1.1 INTRODUCTION

1.1.1 Purpose

This CGS SS establishes responsibilities and guides actions necessary to identify, plan, develop, test, evaluate, acquire, deploy and sustain all CGS support requirements. The CGS is currently in the Full-Rate Production phase of acquisition. CGS production is a Preplanned Product Improvement (P3I) program that will evolve over time to delete obsolete capabilities and replace them with improved or added capabilities. The initial version of the CGS, as shown on Figure 1-1, is nomenclatured as the Target Acquisition Subsystem, AN/TSQ-179(V)2.

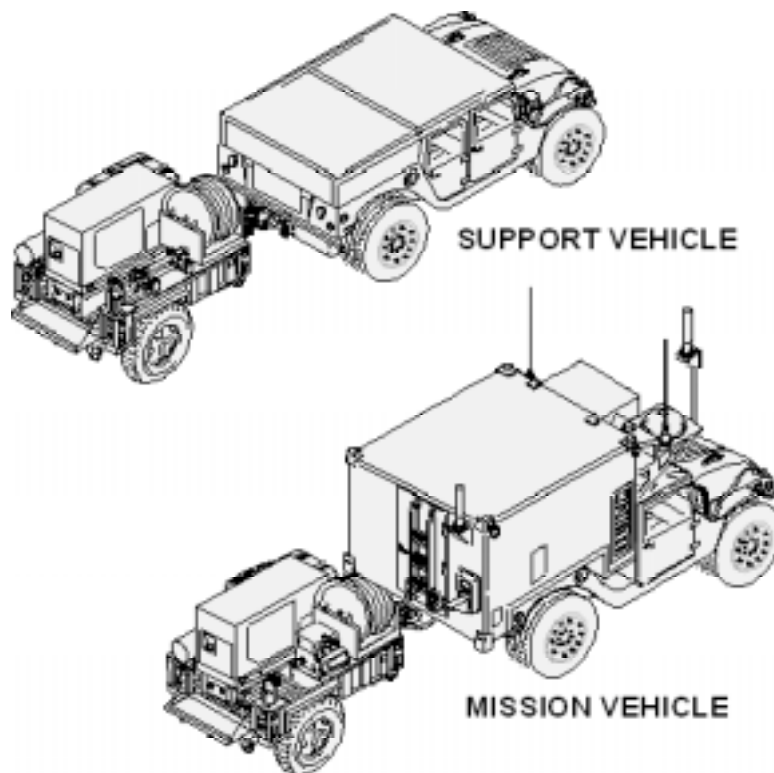


Figure 1-1. Joint STARS CGS AN/TSQ-179(V)2

This SS provides for integration of CGS logistics with system design, human factors, engineering, test and overall system acquisition requirements. At the same time it ensures an optimally supportable CGS that attains specified readiness objectives. This SS also identifies logistics assets required for CGS sustainment and fielding.

1.1.2 Background

In mid 1970's the Army and Air Force developed technical approaches for airborne radar systems with a capability to detect, locate and track ground moving targets at ranges well beyond the Forward Line of Own Troops (FLOT). These efforts resulted in the Army's Standoff Target Acquisition System (SOTAS) and the Air Force's Pave Mover engagement system. In May of 1982, DOD directed that Army and Air Force programs be merged into the Joint Surveillance Target Attack Radar System (Joint STARS) program.

The Air Force is the Executive Service and the Army the Participating Service. An Army/Air Force Memorandum of Agreement (MOA) for management of the Joint STARS Program defines service responsibilities (see Annex A). As Executive Service, the Air Force provides overall coordination and integration of the Joint STARS Program. Air Force is responsible for development, test, production and fielding of Air Force Prime Mission Equipment (PME); the airborne platform, airborne Operations and Control Center; and airborne radar and data links.

As Participating Service, the Army is responsible for development, test, production and fielding of items of interest to the Army; specifically, ground stations. There are several versions of ground stations developed over the past few years. These versions are:

1.1.2.1 Target Acquisition Subsystem, AN/TSQ-132(V)1.

In August 1984, the Army awarded a contract to Motorola, Inc., Government Electronics Group (GEG), to develop eight Full Scale Development (FSD), AN/TSQ-132(V)1, Target Acquisition Subsystems. This system, referred to as Interim Ground Station Modules (IGSM), included a complete hardware/software development with associated logistics and test efforts. An IGSM Operational Field Demonstration (OFD) for Senior NATO and U.S. European Commanders took place September - October of 1990. OFD successfully demonstrated IGSM's capability by interfacing with the Air Force Joint STARS Airborne Radar. Based upon demonstrated capabilities, six FSD IGSMs were shipped to Southwest Asia and used in Operation Desert Shield/Desert Storm. Due to the IGSMs exemplary performance in Desert Storm, where it provided a capability far beyond all expectations, a formal User Test (UT) was no longer required. The FSD IGSMs were fielded in FY1994 to fill user requirements and were decommissioned in FY 1997.

1.1.2.2 Target Acquisition Subsystem, AN/TSQ-132(V)2.

Due to delays in the FY89 IGSM fielding date, and an urgent need for the GSM, the Joint STARS TRADOC System Manager (TSM) initiated a requirement for a Limited Procurement-Urgent (LPU) GSM. This ground station, designated as the AN/TSQ-132(V)2, interfaced with the Army's AN/UPD-7 Radar Surveillance Subsystem mounted on the OV-1D Mohawk aircraft, but not with the Joint STARS E-8 aircraft. This GSM fulfilled an immediate critical need beginning in FY90. The LPU GSM was basically the same as the IGSM version with the exception that it had a monochrome stroker display rather than the color raster display used in the IGSM. Five LPU GSMs were fielded in Korea. These LPU GSMs were decommissioned in FY96.

1.1.2.3 Target Acquisition Subsystem, AN/TSQ-168(V)1/2.

This program referred to as the Medium Ground Station Module (MGSM), was a fully functional ground station mounted on two 5 Ton Trucks and powered by an AN/MJQ-10A Power-Plant Subsystem. The MGSMs contained the capabilities developed under the EMD LGSM contract as described below. Four EMD and 12 Low Rate Initial Procurement (LRIP) MGSMs was developed. Four EMDs and 9 of the production MGSMs are AN/TSQ-168(V)1s. Fieldings of MGSM models began in the first quarter of FY96. In the third quarter of FY96, 3 production MGSMs were fielded to Korea. These MGSMs are augmented to contain Enhanced Moving Target Indicator (EMTI) and Air Reconnaissance Low (ARL) capabilities and are designated as AN/TSQ-168(V)2 MGSMs. With exception of the on-the-move capability, functionally, all MGSM run identical software as in the EMD LGSM. MGSMs were decommissioned in CY1999.

1.1.2.4 Target Acquisition Subsystem, AN/TSQ-178(V)1.

This Target Acquisition Subsystem is commonly known as the Light Ground Station Module (LGSM). Four EMD LGSMs were fielded to III Corps, Fort Hood, TX. The LGSM mounts primary mission equipment modules in a Lightweight Multipurpose Shelter (LMS). This LMS is carried on a heavy variant of the HMMWV. A second HMMWV, with a mounted LMS, carries supplemental and support equipment. In addition to static position dual workstation operations, the LGSM has the capability of operating on-the-move using a single Remote Workstation (RWS) and satellite link capability. LGSMs were decommissioned in CY 1999.

1.1.2.5 Target Acquisition Subsystem, AN/TSQ-179(V)1.

The Target Acquisition Subsystem AN/TSQ-179(V)1, also referred to as the Common Ground Station (CGS). The CGS is similar to the LGSM. It mounts on a HMMWV and includes the same functionality as the LGSM and MGSM with addition of an Integrated Data Modem (IDM) and Secondary Image Dissemination (SID) capability. However, the CGS relies to a greater extent on Commercial Off-The-Shelf (COTS) equipment to achieve this functionality.

1.1.2.6 Target Acquisition Subsystem, AN/TSQ-179(V)2.

The V(2) Target Acquisition Subsystem is an upgrade of the Baseline Common Ground System. Enhancements have been made to the hardware and the software of the CGS and listed below:

- The load capacity was increased in the (V)2 CGS by replacing the M1097 with a M1113 Expanded Capacity Vehicle (ECV) Mission Vehicle.
- A color printer was installed in the mission vehicle.
- Upgrades of the server (to include 4-400MHz processors and 1 G RAM) and the UPS (for extended power protection) were implemented.
- One KIV-7 encryptor and one KG-84A were added for use with the SPITFIRE and CTT radios.
- The workstations were enhanced to include a floppy disk drive and a removable hard drive. The floppy disk drive, in conjunction with the STAR OFFICE and NETSCAPE

software applications, which were also added in the (V)2 CGS, offer a powerful capability in providing an office type environment to the CGS. The removable hard drive facilitates the handling of classified data and enables the classified materiel to be removed from the (V)2 CGS when not in operation. A Remote Workstation with the full capability of the other workstations was added.

- Several external interfaces were added. These interfaces include:
 - Airborne Reconnaissance Low (ARL), which allows the ARL MTI and SAR data to be received and displayed from the ARL aircraft.
 - U-2, which allows U-2 EMTI data to be received and displayed.
 - PREDATOR UAV interface allows the (V)2 CGS to link to the PREDATOR ground control station to receive and display EO/IR video and telemetry. The telemetry is decoded from the video signal through the added CGS hardware.
- Other external interfaces were upgraded to retain compatibility with the improvements in message standards and formats:
 - The ASAS interface has moved to the USMTF 2000 capability, although the older USMTF 97 was maintained.
 - The AFATDS interface was upgraded to the Joint Variable Message Format (JVMF).
 - The older TACFIRE capability was maintained.
 - In both cases, the older version of message capability was maintained to continue to inter-operate with legacy systems.
- Other changes affecting external interfaces include;
 - SIDs via National Imagery Transmission Format (NITF) was upgrade to Version 2.1
 - The E8 interface was upgraded for compatibility with the TADIL-J improvement made on the E8.
 - The IBS network capability was upgraded.
- Some operator features were improved through software changes in the (V)2 CGS and include:
 - Advanced imagery capability which allows multi-source SIDs analysis and dissemination, multi-source video receipt, Image Product Library (IPL), image compression, video clips, radar shadow masking and mission planning aids, customized display through “Preferences”, and Target Alert (Watch Dogs from TCTA program).
 - Operator proficiency and training capability was also improved through the introduction of an ability to support both live missions and simulation simultaneously.

1.1.3 Application

This SS pertains to the Full-Rate Production Phase for the AN/TSQ-179(V)2 Target Acquisition Subsystem. It establishes logistic plans, policy and practices for the CGS.

1.1.4 Iteration

The original CGS Integrated Logistic Support Plan (ILSP) was published on 30 October 1996. This Supportability Strategy (SS) is the fourth update to that Target Acquisition Subsystem AN/TSQ-179 ILSP. It will continue to be updated as a SS as Preplanned Product Improvements (P3I) are applied or as periodic changes dictate.

1.1.5 Abbreviations

Annex B is a Glossary of Joint STARS terms, acronyms, and abbreviations used in this SS.

1.2 MATERIEL SYSTEM DESCRIPTION

1.2.1 Functional Operation

Joint STARS consists of an Air Force E-8 airborne platform with airborne radar and data links and Army ground stations that receive, process and display this radar data. There are several types of radar data available through the system:

- Wide Area Surveillance (WAS) - Provides radar returns for Moving Targets (Moving Target Indicator-MTI) within a wide geographical area. This is the principal ground station mode of operation.
- Sector Search (SS) - A mode that achieves MTI data over a smaller geographic area.
- Fixed Target Indicator (FTI) - Provides stationary target returns of high intensity.
- Synthetic Aperture Radar (SAR) - Provides picture-like image of a relatively small area.

These types of radar are received and displayed in near real-time for analysis and intelligence/target dissemination. As radar returns are displayed, operators quickly ascertain hostile target patterns represented by location, number of targets, direction of travel, speed, etc. Since the radar data is displayed near real-time and stored, this permits various analysis operations as well as targeting operations to be conducted. Two automated analysis tools available for MTI are "time compression" and "time integration".

In time compression, operator's display recorded data faster than received in an apparent speed-up. This mode aids in identifying target displacement and establishes traffic pattern correlation and detection. In time integration, multiple frames are presented, as in time compression, but each frame stays on the display until the cycle is completed. This mode assists the operator in detecting semi-fixed targets, such as assembly areas, where there is no significant movement. Operators can also relate radar data to selected topographical features (bridges, rivers, roads, etc.) entered into the computer database directly from maps using the plotting board digitizer or from digitized maps. Through the use of this graphics capability, desired terrain features and the tactical situation can be displayed electronically on operator workstations.

Ground station output, in Tactical Fire Direction System/ Advanced Field Artillery Tactical Data System (TACFIRE/AFATADS) or All Source Analysis System (ASAS) message format is provided to Command, Control, Communications and Intelligence (C3I) nodes via secure or non-secure wire or radio. This enables integrated battle management, surveillance, targeting and interdiction plan development and execution in near real-time. Ground stations will be fielded to Military Intelligence Brigades at EAC, Military Intelligence (MI) Battalions (BN), Field Artillery Brigades and Aviation Brigades at Corps and to MI BNs, Aviation Brigades and Maneuver Brigades at Division level. CGSs will be located at Corps Tactical Operations Centers (CTOC), and Corps Artillery Tactical Operations Centers (ATOC). CGSs at Corps Artillery will support Army Tactical Missile System (ATACMS) Tactical Operations Centers. At Division, ground stations are located at Division Tactical Operations Centers (DTOC), and at Division Tactical Command Posts (TAC) at Aviation Brigade Tactical Operations Centers and at each Brigade Tactical Operations Center

1.2.1.1 CGS Interface and Functional Description

The CGS receives, processes, disseminates and stores data from or to a variety of sensors as depicted on Figure 1-2. CGS Interface. Imagery-Intelligence (IMINT) sensors include: Joint STARS, SID, and UAV (video and telemetry). Electronics-Intelligence (ELINT) and Communications-Intelligence (COMINT) data is accessed through the Commander's Tactical Terminal (CTT). The Global Positioning System (GPS) provides current time and location of the CGS. The AN/TSQ-179(V)2 provides simultaneous reception from a variety of IMINT sensors to display data in different combinations. CGSs function independently or may be interconnected to other CGSs over a fiber optic Local Area Network (LAN). Each CGS can also interface with a Remote Workstation (RWS) in the truck cab and up to 4 other RWSs at remote locations.

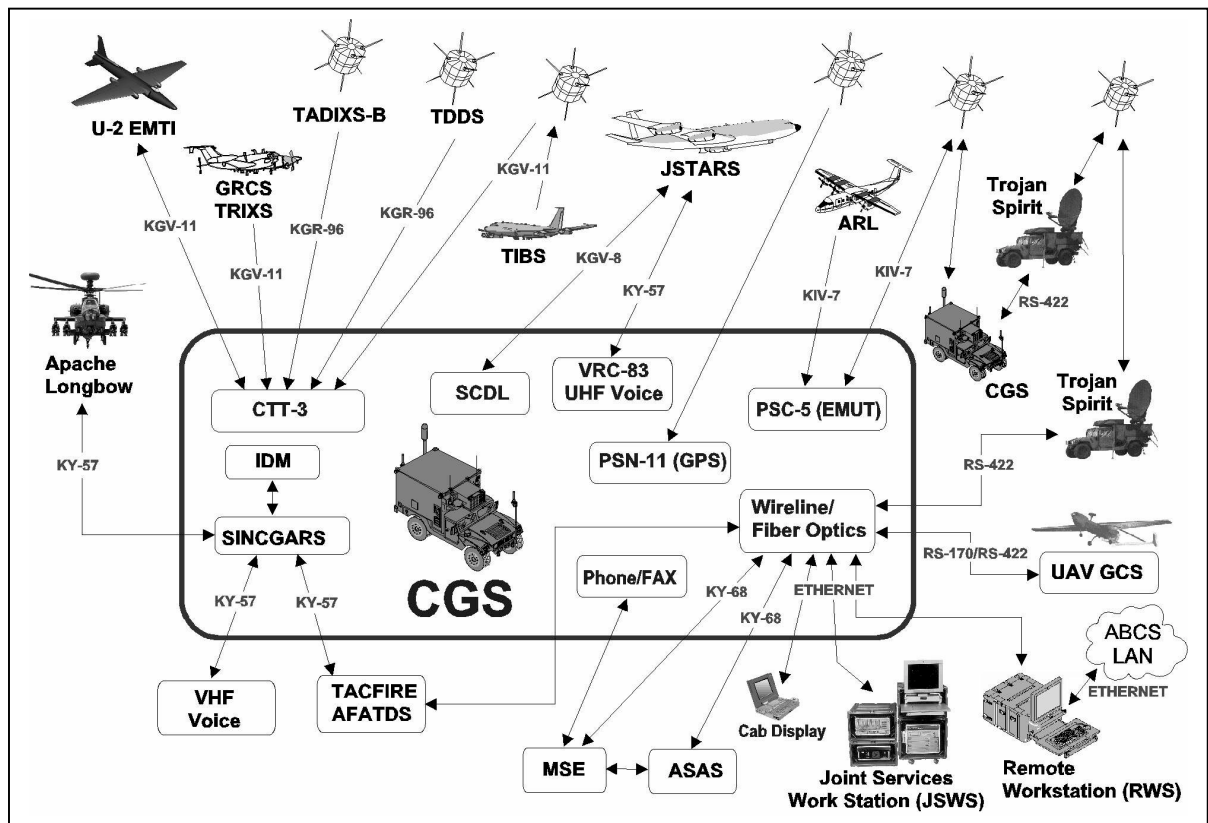


Figure 1-2. CGS Interface

1.2.1.1 Common Ground Station (CGS)

The system detects, locates and tracks moving and stationary ground targets located beyond the FLOT. CGS combines multi-modal radar and signal processors aboard an E-8 platform. Preprocessed radar output is simultaneously available to Air Force Operations and Control (O&C) consoles on the airborne platform and to deployed ground stations. Preprocessed radar signals are transmitted to ground stations through the Air Data Terminal (ADT) of the Surveillance and Control Data Link (SCDL). Data is received by the ground stations through the SCDL Ground Data Terminal (GDT) where it is stored and displayed by the operator for analysis, target detection and tracking.

1.2.1.2 Unmanned Aerial Vehicle

Unmanned Aerial Vehicle (UAV) encompasses several development programs, such as Outrider and Predator that interface with the CGS. The UAV can carry various sensors such as video, day/night passive infrared and radar. To date, Common Ground Stations have demonstrated interfaces with Outrider and Predator video (RS170 link) and telemetry (RS422 link).

1.2.1.3 Commander's Tactical Terminal (CTT3)

Data from Intelligence Broadcast Networks (IBN) are received through the 3 channel Commander's Tactical Terminal (CTT). CTT3 receives data from up to three of the following networks simultaneously:

- Tactical Reconnaissance Intelligence Exchange System (TRIXS)
- Tactical Information Broadcast Services (TIBS)
- Tactical Data Dissemination System (TDDS)/Tactical Related Application (TRAP)
- Tactical Data Information Exchange Service - Broadcast (TADIXS-B)
- CTT3 transmit capability reserved for future use

1.2.1.4 Remote Workstation

The RWS provides the capability to store, display and manipulate sensor data as done inside the CGS shelter. Up to four RWSs may be linked to the CGS over an external fiber optic Local Area Network (LAN). Each RWS uses identical software as in the CGS workstations. Positioning of RWSs in command and operations centers provides near real time data to commanders and planners. The RWS also provides the capability to conduct workstation training in the field. A Remote Workstation (RWS) maybe mounted in the CGS truck cab for on-the-move operations. .

1.2.1.5 TACFIRE/AFATDS and ASAS

The CGS provides both secure and non-secure digital data communications with TACFIRE, its follow-on AFATDS, and with ASAS. TACFIRE/AFATDS data will be transmitted over both VHF radio and wireline. ASAS will be interfaced over wireline or MSE. Targeting data can be sent through ASAS or direct to TACFIRE/AFATADS. Intelligence data is sent direct to ASAS. Secondary Image Dissemination (SID) provides the capability to receive and send pictorial data. SID is received over Satellite Communications (SATCOM), other UHF/VHF radios, the LAN and wireline. Use of pictorial data, such as high altitude satellite photos, can be used by CGS operators to confirm or deny probable targets identified using other sensors.

1.2.1.6 Secondary Image Dissemination (SID)

SID provides the capability to receive a send pictorial data. SIDs is received over UHF SATCOM, Trojan Spirit, the LAN, STU III/STE, and MSE wireline. Use of pictorial data, such as high altitude photographs, can be used by CGS operators to confirm or deny probable targets identified using other sensors.

1.2.1.7 Improved Data Modem (IDM)

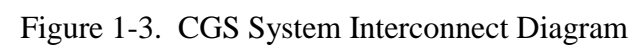
The CGS provides the capability to send and receive battlefields information to and from the AH-64D Apache Longbow Radar. The IDM will interface to the Longbow through the SINCGARS VRC-92 radio and will be implemented using the following messages:

- Fire Control Radar (FCR) Priority and Total Targets (transmit and receive). Apache Longbow targets are translated into MTI and displayed on the screen.
- Free text Messages (Transmit and receive).
- Shot AT Reports (query and response).
- AH-64 Present Position Reports - Every 20 seconds, displays the aircraft location on the screen in response to CGS queries.

1.2.2 AN/TSQ-179 Physical Description

An operational CGS consists of a set of equipment as depicted on Figure 1-1. The CGS includes the shelter, two heavy HMMWVs, two M-1102 utility trailers each with a mounted 10KW MEP-803A generator, a single switchbox, and ancillary equipment. Figure 1-3. shows the CGS P3I System Interconnect Diagram. In a static position, the CGS may be connected to a commercial power source. The major functional groups of the CGS are described in the following paragraphs.

Group1 P3I System Interconnect Diagram



1.2.2.1 Shelter Group

This functional group provides the CGS enclosure, racks for mounting of mission equipment, signal and power interface panels and the mast. The shelter is a standard military Lightweight Multi-purpose Shelter (LMS) adapted for mounting of CGS electronics components, interface connector panels, cable assemblies, environmental control components and operator chairs. Figure 1-4. shows basic equipment layout within the shelter and identifies equipment racks in the shelter.

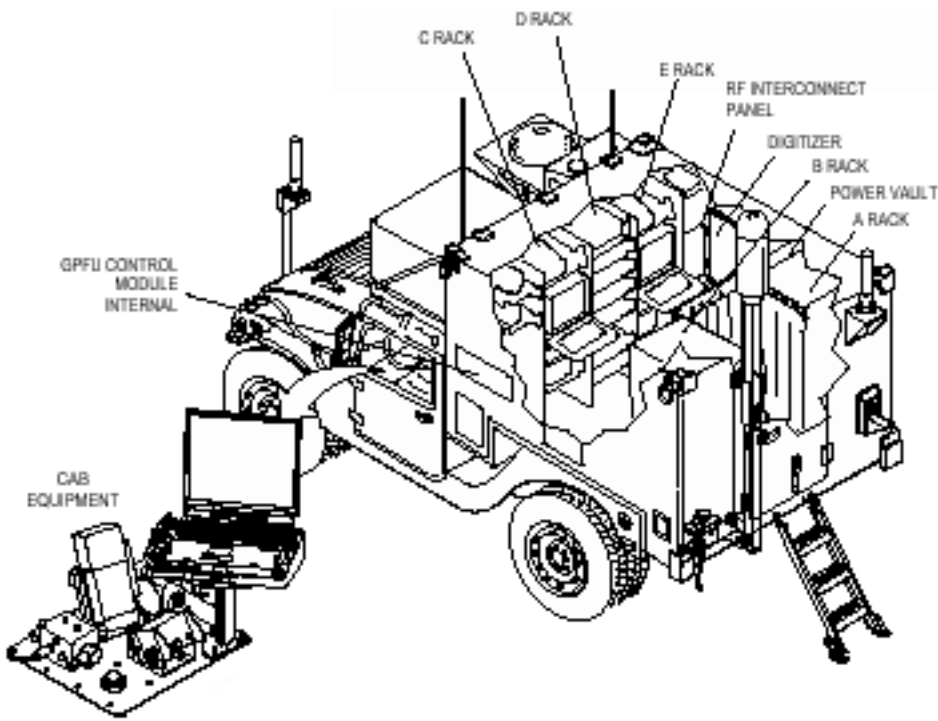


Figure 1-4. CGS Internal Layout.

1.2.2.2 Environmental Control Group

This group provides clean conditioned air for the shelter interior. The group consists of a heater/air conditioner, a GFE Gas Particulate Filtration Unit (GPFU) and GFE Chemical, Biological, Radiological (CBR) equipment. The shelter is heated and cooled by a 35,000/13,500 BTU Environmental Control Unit (ECU) mounted to the front wall of the shelter. The ECU is Designed to maintain enclosure temperatures between 50 and 85 degrees Fahrenheit.

1.1.1.1 Power Generation Group

Primary power for operation of the CGS electronics equipment is provided by a pair of GFE MEP-803A generators rated at 10 KW, 120/208 Volts AC, 60 HZ. These generators are mounted on trailers towed by the HMMWVs. The generators are paired and paralleled through a GFE switchbox and alternate in providing power to the CGS. 120/208, 3-phase, 50/60 HZ, power can be provided to the shelter from commercial sources as an alternate to generator power. 24 volt DC emergency power is provided to the shelter from the HMMWV battery.

1.2.2.3 Power Distribution Group

This group delivers power within the CGS shelter and consists of the power vault with surge protectors, switches, test and monitoring devices and a 28-Volt Direct Current (VDC) power supply. It also includes shelter lighting, internal power cabling and power strips within the equipment racks.

1.2.2.4 Automated Data Processing (ADP) Group

Major electronics components that function to receive, store, interface and process data are contained in the ADP Group. The group consists of a server, a disk storage suite, two operator workstations, a text printer, a digitizer, and necessary network interfaces and busses. Server processor modules are integrated to sustain continuous operations in the event that one processor module fails. In addition, the Server contains three unused input-output/processor slots that provide space for future growth. The server also provides the interface for voice and data communications.

1.2.2.5 Workstation Group

The Workstation Group contains two identical workstations, a router and a color printer that are used to access, process and display data received from external sensors or data stored on the storage disk. Each workstation consists of a SUN ULTRA 2 workstation, a monitor, a keyboard and a mouse. This group also contains a Cab Display (CD) mounted in the truck cab. The cab display is used to operate on-the-move, receiving Joint STARS data through satellite communications. There are connectors for up to four other workstations that can be used in remote locations. A Remote Workstation (RWS) is provided which is a "third" ULTRA 2 workstation as above with full shelter workstation capability. It can be remoted over fiber optic LAN for use in TOC type missions.

1.2.2.6 Sensor Interface Group

This group provides equipment to interface with mission sensors. It consists of a 1553 bus link from the Government Furnished Equipment (GFE) Ground Data Terminal/Surveillance Control Data Link (GDT/SCDL) to the Joint STARS airborne platform, a GFE KGV-8C crypto device used with the GDT, an RS-422 telemetry and RS-170 video interface with UAV, and RS-232

interfaces between the GFE Global Positioning System (GPS) receiver and antenna, the Command Tactical Terminal 3 channel(CTT3), and two Video Cassette Recorders (VCR). Both VCRs are served by a common video distribution amplifier.

1.2.2.7 Data Communications Group

Data communications provide interface with TACFIRE/AFATADS, ASAS, and Satellite Communications (SATCOM). TACFIRE/AFATADS interface uses one of two GFE SINCGARS VRC-92 Receiver-Transmitters (RT), the Radio Interface Module and associated equipment to provide either encrypted or non-secure VHF radio communications. TACFIRE/AFATADS non-secure data may also be transmitted over wireline using the Radio Interface Module, the Tactical Communications Interface Module (TCIM) and a wireline adapter. The ASAS interface provides for non-secure or encrypted data through wireline using the TCIM and a GFE KY-68 voice terminal. SATCOM is interfaced using a PSC-5/EMUT radio, dual diplexers, a power splitter and a GFE AM-7175 UHF power amplifier. Data interface for shelters connected in a dual configuration is through a dual Fiber Distributed Data Interface (FDDI). A port on the CGS Communications panel permits direct wire contact with the TROJAN ground station for long-distance satellite communications. A STU III phone coupled with a FAX permits transmission of data over 4 wire phone lines. Table 1-1 shows the voice and data communications equipment of the CGS and the associated crypto capability of each piece of equipment.

1.2.2.8 Voice Communications Group

In-the-clear and encrypted VHF-FM voice communications are provided using one of the RTs of the GFE SINCGARS VRC-92. UHF/VHF-FM communications are provided using an AN/VRC-83 radio coupled with a KY-57 encryptor. Voice communications are also provided through intercom and two Mobile Subscriber Equipment (MSE) lines. Additional voice communications can be established through the KY-68 or STU III radios. Voice communication between shelters in a dual configuration is provided over the FDDI described in the paragraph above.

Table 1-1. CGS Communications

COMPONENT	COMMUNICATIONS	ENCRYPT	DEVICE
SINGARS AN/VRC-92	VHF VOICE/ TACFIRE DATA	YES	INTERNAL
AN/ VRC-83	UHF VOICE	YES	KY-57
KY-68	ASAS WIRELINE	YES	INTERNAL
DNVT	MSE TELEPHONE	NO	NONE
EMUT RADIO AN/PSC-5	SATCOM	YES	INTERNAL
EXTERNAL LAN	EXTERNAL INTERCOM	NO	NONE
STE	SECURE/UNSECURE PHONE	YES	INTERNAL

1.2.2.9 Vehicle Equipment Group

This group consists of two heavy variant HMMWVs, two M-1102 lightweight trailers, equipment required to mount the mission shelter on the HMMWV and equipment to mount generators and stowage cases on the trailers. The HMMWV with the shelter mounted is referred to as the Mission Vehicle, while the second HMMWV is referred to as the Support Vehicle. Both vehicles tow M-1102 trailers with mounted generators.

1.2.2.10 Support Equipment Group

This group consists of maintenance, safety and other required GFE items that do not logically fit within other functional groups. Items in this group include CGS operator manuals, gas cans, tool kits, fire extinguishers, first aid kits and on-board maintenance and housekeeping supplies.

1.2.2.11 Components Of the End Item (COEI)

The COEI identifies major items that may be removed from the CGS and separately packaged for transportation or shipment. COEI are a required part of the end item. As part of the end item, the COEI must be with the CGS whenever it is issued or transferred between property accounts. Table 1-2 is the COEI List (COEIL) for the CGS. Items on the list are identified by Item Name, Part Number (Part NO), National Stock Number and Qty per System. Authority to requisition items listed on the COEIL is contained in the CGS -20P and-30P Repair Parts and Special Tools Lists (RPSTLs).

Table 1-2. CGS COEIL.

ITEM NAME	PART NO.	NSN	QTY/ SYSTEM
Adapter, Connector	3682-2311-02	5935-00-135-2127	1/1
Adapter, Connector	1002-0001	5935-00-701-2214	1/1
Amplifier, Linear:	AM-7175 *	5895-01-442-3737	1/1
Antenna, AS3900A/VRC*	A3017899-1	5895-01-308-8988	2/1
Antenna, UHF/VHF* (VRC-83)	C66-4-1	5895-01-427-7116	2/1
Antenna, SATCOM Omni	C99-11-2	5985-01-425-7312	1/1
Antenna, SATCOM Directional	SE-109-1	5985-01-436-4935	2/1
Breakout Box	96-00220-02		1/1
Breakout Box	96-00220-00		1/1
Bus Coupler (Dual)	DBC-34302		2/1
Case, Transit	A3255262		4/1
Chair, Assembly	A3252875-1		2/1
CISCO Fast Hub	WS-C108	5895-01-459-3792	3/1
Converter	AT-FMR112T-10	5895-01-459-3006	1/1
Converter	AT-FMR118FT-13	5895-01-459-3047	1/1
Concentrator	ATF-3606F-19	5895-01-459-3048	1/1
Control Monitor: C- 11291/VRC*	A3148258-1	5895-01-151-9914	1/1
Digital Non-Secure Voice Terminal	2DGA06XA	5810-01-395-4259	1/1
Digitizer	T14-2436AT- 4/moto	5810-01-457-8311	1/1
Diplexer	DFP-102RB	5985-01-439-6043	1/1
Diplexer w/Preamplifier	DFP-106C	5985-01-460-0555	1/1
Disk	906007-011		1/1
Disk Subsystem (CDSS)	922DA060000-020		2/1
Encoder-Coupler, Digital	AT-FMX40F/ST- 05	7050-01-459-3045	1/1
Environmental Control Unit (ECU)	A3203412XF		1/1
Fastlane Data Switch, 4:1	45-2005		2/1
FAX Set	A3254583-002	5815-01-425-7036	1/1

ITEM NAME	PART NO.	NSN	QTY/ SYSTEM
Generator, Switchbox	SK-E-PU798SB-001-DJB		1/1
GPFU: M93 100CFM*	D5-15-4826	6665-01-231-6515	1/1
Ground Data Terminal: OZ-64/GRY*	232500-2(94987)	5998-01-375-0381	1/1
Handset: H-250/U	SM-D-889337	5965-00-043-3463	1/1
Headset, Microphone	40596G-01	5965-01-457-9410	3/1
Keyboard	H8320-1234	5895-01-457-9423	2/1
Mast Assembly	A3255250		1/1
Modem, Data, Improved: MD-1295/A	DM001-301	5985-01-372-0114	1/1
Mounting Base	MT-6429/VRC	5820-01-235-1962	1/1
Mounting Base	MT-6352/VRC	5975-01-188-8873	1/1
Mouse, Data Entry	MOTO-42R2	7025-01-462-7173	2/1
Monitor, Color	NOVA17SII-SB	5895-01-447-1073	2/1
Power Supply 28 VDC	LFS-49-28	6120-01-457-9419	1/1
Printer, Color (PHASER 440)	A3254988	5836-01-457-9424	1/1
Printer, Text	BJ-30	7025-01-433-8741	1/1
Push-To-Talk Assembly, Headset	40597G-03		3/1
Radio Interface Module	A3255241		1/1
Radio Set: AN/VRC-83(V)3	707123-805(37695)	5820-01-291-5415	1/1
Remote Workstation (RWS)	PX1024-1200-128 A3262891	7021-01-457-7112	1/1
Router (Interface Unit)	A3254986	5895-01459-3793	1/1
Server	A3254989	7021-01-457-7107	1/1
Shelter, Lightweight Multipurpose	17-1-3725		1/1
Switchbox Cable	SK-E-PU798SB-006-DJB		1/1
Tactical Comm Interface Module (TCIM)	A3254581-004	5895-01-411-4931	1/1
Telephone, Secure	A3254583-001	5810-01-408-0224	2/1
VCR	EVO-550H	5836-01-459-5016	2/1
Video Distribution Amplifier	DA-1510B0900-6886-02		1/1
Workstation Computer SUN Ultra 2	A3254985	1285-01-460-2966	2/1

* Government Furnished Equipment

1.2.2.12 Basic Issue Items

Basic Issue Items (BII) are not major items, nor part of the CGS, but are essential for safety or to place the CGS in operation, operate it, or to perform emergency repairs. BII must be with the CGS during operations, maintenance, or whenever the CGS is transferred between property accounts. A BII list is provided in the CGS Operator's Manuals. This list is the authority to order and keep the BII items on hand. On Table 1-3 each BII is listed by Item Name, Part NO, NSN and Quantity per System.

Table 1-3. CGS BII

ITEM NAME	PART NO.	NSN	QTY/ SYSTEM
Cable, Fill	ON512424	5810-01-066-7587	1/1
Cable, Fill	A3197259(80063)	5995-01-379-9689	1/1
Can, Fuel	14196P1(81349)	7240-01-337-5269	4/1
Compass, Magnetic		6605-00-553-8795	1/1
Decontamination Kit: M258A1*	D5-77-2366(81361)	4230-01-101-3984	1/1
Detector Unit: M256A1	C5-77-2001	6665-01-016-8399	1/1
Fire Extinguisher*	5RCO2	4020-01-149-1356	3/1
First Aid Kit	SC-C-6545-ILVOL2	6545-00-922-1200	1/1
Guide, Equatorial Satellite Antenna	4-3030/015SIZE(8F437)		1/1
Ground Rod Kit	A104(82370)	5965-00--878-3791	1/1
Ground Rod Puller-Driver	13226E7741(97403)	5120-01-013-1676	1/1
CGS Technical Manual, VOL. 1	TM 11-5865-348-10-1		1/1
CGS Technical Manual, VOL. 2	TM 11-5865-348-10-2		1/1
Hammer, Sledge	H8H(77348)	5120-00-251-4489	1/1
Light, Extension	W-L-661-4-1-3	6230-00-146-8899	1/1
Maintenance Kit CBR M273	D5-15-8194	5180-01-108-1729	1/1
Nozzle, Fuel Can	11677020(19207)	7420-00-177-6154	2/1
Straps, Cargo		5340-00-395-9457	4/1

1.2.2.13 Additional Authorized List (AAL)

This category of equipment includes major items used with the CGS. AAL items are separately authorized by Tables of Organization and Equipment (TOE), by Tables of Distribution and Allowances (TDA) or by Common Tables Of Allowances (CTA). Table 1-4 lists AAL items authorized by TOE, TDA or CTA. Each listed item is identified by its Item Name, Line Item Number (LIN), Part NO., NSN and Qty/System. AAL items are part of an operational CGS and are not to be considered as spares.

Table 1-4. CGS AAL

ITEM NAME	LIN	PART NO.	NSN	QTY/ SYSTEM
Alarm, Automatic: M8A1	A32355		6665-01-105-5623	1/1
Cable Tel: WD-1A/ATT DR-8	C68719		6145-01-155-4257	1/1
Cable Tel: WF-16/U	C69541	A3086481	6145-00-910-8847	1/1
*Control, Radio Set: C-2299/vrc	E94970		5820-00-892-3340	1/1
Decon Apparatus: M13	D81537	E5-51-527	4230-01-133-4124	1/1
*Gen Set: MEP 803A DED 10KW 60HZ	G74711		6115-01-275-5061	2/1
Loudspeaker LS-454	L84098		5965-00-876-2375	1/1
Multimeter: AN/PSM-45A	M60449		6625-01-139-2512	1/33W
*Navigation Set, GPS (PLGR) AN/PSN-11	N95862	822-0077-002	5825-01-374-6643	1/1
Test Set, RF Power AN/URM-213	R22666		6625-01-288-6515	1/1
*Radio Set: AN/VRC-92F	Z56425		5820-01-451-8250	1/1
Reel Cable: DR-8	R55920		8130-00-407-7859	1/1
*Radio Set (EMUT): AN/PSC-5	R57606		5820-01-366-4120	1/1
Reeling Machine: RL-39	R59160		3895-00-498-8343	1/1

CGS AAL(Cont.)

*Speech Security Equip: TSEC/KY-57	S01373	ON241700	5810-00-434-3644	1/1
*Speech Security Equip DSVT: TSEC/KY-68	S64488	ON319257-501	5810-01-082-8404	1/1
*Tape Reader: KOI-18/TSEC	T40405	ON190315	5810-01-026-9620	1/1
*Truck, Utility: M1097 Hvy Variant 10K LB GVW 4X4 W/E	T07679		2320-01-380-8604	1/1
*Truck, Utility: M1113	T61630		2320-01-412-0143	1/1
Tel Wire W/Reel: MX-10891/G	T31872		6145-01-259-9203	1/1
Tool Kit, Elec Equip: TK-17/G	T57382		5180-01-195-0855	1/33W
Tool Kit, Elec Equip: TK-101/GSQ	W37483		5810-00-064-5178	1/1
*Transfer Device: AN/CYZ-10	Z21128	ON477400-8	5810-01-393-1973	1/1
*Commander's TAC Terminal 3 CTT3 AN/USC-55	Z24045	A311554-001	5895-01-433-9072	1/1
*Trailer, High Mobility: M1102	Z36204	12450003 HMT-H	2330-01-387-5426	2/1
*COMSEC Module JTIDS: KGV-8/TSEC	Z54132		5810-01-208-4553	1/1

* Government Furnished Equipment

1.2.2.14 Expendables/Durables (Push Package)

Table 1-5 lists Expendables and Durables used with the CGS. Expendables/durables are low cost items purchased by using units, such as paper, cleaning supplies and lubricants needed to service and operate the CGS. On the table each item is listed by NSN or CAGE and PN followed by item description, Unit of Measure (UM) and the Quantity (QTY) provided for the fielding process.

Table 1-5. CGS Expendables/Durables

ITEM	NSN/PN(CAGE)	DESCRIPTION	UM	QTY	
1	6810-00-753-4993	Alcohol, Isopropyl	8 oz.	1	
2	6515-00-303-8100	Applicator, Disposable	pkg.	1	
3	8105-01-217-0004	Bag, Plastic, Static Free	ea	50	
4	6135-00-450-3528	Battery,Dry,36V BA3517/U	ea	1	(M43A1)
5	6135-00-835-7210	Battery BA3030/U	pkg	1	(M42)
6	6135-01-069-8575	Battery, Lithium BA5599/U	ea	1	(GDT)
7	6135-01-214-6441	Battery, Lithium BA5372/U	pkg	1	(SINCGARS)
8	6135-01-351-1131	Battery, Non-Rechargeable	ea	2	(CYZ-10)
9	6135-01-301-8776	Battery, Non-Rechargeable	ea	1	(GPS)
10	7930-00-184-9423	Cleaner, Glass	gal	1	
11	016-1303-00	Cleaning Kit/Tray	ea	1	
12	8305-00-267-3015	Cloth, Cheesecloth	yd	4	
13	7920-00-044-9281	Cloth, Cleaning GP	lb	1	
14	8030-00-117-8510	Compound, Sealing 3145RTV	tu	1	(2.8oz)
15	7930-00-249-8036	Detergent, GP	oz	1	(32 oz)
16	8315-01-445-8812	Fastener, Tape, Hook & loop	yd	1	
17	016-1296-00 (19059)	Film, Transparent (50 sheets)	bx	2	
18	020-P-062 (0AYP6)	Fuse (Air Conditioner)	ea	2	
19	7510-01-422-4279	Ink Tank, BCI 10	ea	2	
20	6240-01-376-7963	Lamp, Incandescent (Blue)	ea	2	
21	6240-00-132-5317	Lamp, Incandescent	ea	4	
22	016-1299-00(19059)	Paper	pkg	2	

Table 1-5. CGS Expendables/Durables

ITEM	NSN/PN(CAGE)	DESCRIPTION	UM	QTY	
23	35305	Paper, Coml 8 1/2 X 11 20#	pkg	1	(500 sheets)
24	5DGA79XA(0KF02)	Paper, Facsimile	roll	1	
25	5970-00-740-2972	Sleeving	ft	1	
26	5970-00-814-2878	Sleeving	ft	1	
27	MS23053-116-0	Sleeving	ft	1	
28	5975-00-074-2072	Strap, Tiedown MS3367-1-9	hd	1	
29	5975-00-727-5153	Strap, Tiedown MS3367-4-9	hd	1	
30	5975-00-133-8696	Strap, Tiedown MS3367-6-9	hd	1	
31	5975-00-570-9598	Strap, Tiedown MS3367-7-9	hd	1	
32	8135-00-178-9200	Tag, Marking	hd	1	
33	8040-00-530-4820	Thread, Adhesive	Pt.	1	
34	ABMM-A-C	Tie Mount, Adhesive Back	ea	12	
35	016-1302-00 (19059)	Transfer Roll,(Color Printer)	roll	2	
36	7920-00-184-9014	Wipes, Foam	pkg	1	
37	9505-00-293-4208	Wire, Safety	spool	1	

1.2.2.15 Nomenclatured Items

The CGS and numerous integrated GFE items used in this system are nomenclatured. Table 1-6 lists the CGS and nomenclatured items contained in or used with the CGS. The table presents each nomenclatured item listing the assigned nomenclature designation, the nomenclature, applicable Line Item Number (LIN), NSN and the quantity authorized per CGS.

Table 1-6. CGS Nomenclature Items

NOMENCLATURE ITEM	NOMENCLATURE LIN		NSN	QTY/ SYSTEM
Target Acquisition Subsystem	AN/TSQ-179(V)2	Z26254	5865-01-470-4744	1/1
Alarm, Automatic	M8A1	A32355	6665-01-105-5623	1/1
Amplifier, Linear	AM-7175/URC		5895-01-175-9853	1/1
Antenna	AS-3900/VRC		5895-01-297-2971	2/1
Cable, Telephone	WD-1A/ATT DR-8	C68719	6145-01-155-4257	1/1
Cable, Telephone	WF-16/U	C69541	6145-00-910-8847	1/1
Control, Radio Set	C-2299/VRC	E94970	5820-00-892-3340	1/1
Decontamination Apparatus	M13	D81537	4230-01-133-4124	1/1
Gen Set, DED 10KW, 60HZ	MEP 803A	G74711	6115-01-275-5061	2/1
GPFU (100 CFPM)	M93		4240-01-231-6515	1/1
Ground Data Terminal	OZ-64/GRY		5998-01-375-0381	1/1
Handset	H-250/U		5965-00-043-3463	1/1
Loudspeaker	LS-454/U	L84098	5965-00-876-2375	1/1
Maintenance Kit, CBR	M273		5180-01-108-1729	1/1
Modem, Data Improved	MD-1295/A		5985-01-372-0114	1/1
Mounting Base, Electronic	MT-6352/VRC		5975-01-188-8873	1/1
Mounting Base, Electronic	MT-6429/VRC		5820-01-220-7901	1/1
Mounting Base, Electronic	MT-6353/VRC		5975-01-235-1962	1/1
Multimeter	AN/PSM-45A	M60449	6625-01-139-2512	1/33T
Navigation Set GPS (PLGR)	AN/PSN-11	N95862	5825-01-374-6643	1/1
Radio Set	AN/VRC-83(V)3		5820-01-291-5415	1/1
Radio Set	AN/VRC-92F		5820-01-267-9477	1/1
Radio, EMUT	AN/PSC-5	R57606	5820-01-366-4121	1/1
Reel, Cable	DR-8	R55920	8130-00-407-7859	1/1
Reeling Machine	RL-39	R59160	3895-00-498-8343	1/1
Shelter, NonExpd Rigidwall	S788	S01563		1/1
Speech Security Equipment	TSEC/KY-57	S01373	5180-00-434-3644	1/1

Table 1-6. CGS Nomenclature Items (Cont.)

NOMENCLATURE ITEM	NOMENCLATURE LIN	NSN	QTY/ SYSTEM
Speech Security Equipment	TSEC/KY-68	S64488	5810-01-082-8402 1/1
Tape Reader	KOI-18/TSEC	T40505	5810-01-026-9620 1/1
Truck, Utility (HMMWV HVY)	M1097A1/A2	T07679	2320-01-380-8604 1/1
Truck, Utility (Enhanced HMMWV)	M-1113	T61630	2320-01-412-0143 1/1
Telephone Wire w/Reel	MX-10891/G	T31872	6145-01-259-9203 1/1
Tool Kit, Electronic Equip	TK-17/G	T57382	5810-01-195-0855 1/33T
Tool Kit, Electronic Equip	TK-101/GSQ	W37483	5810-00-064-5178 1/1
Transfer Device, Data	AN/CYZ-10	Z21128	5810-01-393-1973 1/1
Commander's Tactical Terminal	AN/USC-55A, or AN/USC-55B	Z24045	5895-01-443-9072 1/1 5895-01-443-8178
Trailer, Cargo, High Mobility	M1102	Z36204	2330-01-387-5426 2/1
COMSEC Module (JTIDS)	KGV-8/TSEC	Z54132	5810-01-368-7752 1/1

1.2.3 CGS Technical Data

Table 1-7 provides a reference list of technical data pertaining to the Target Acquisition Subsystem, AN/TSQ-179(V)2.

Table 1-7. CGS Reference Data

AN/TSQ-179(V)1 L-LRIP Contract	DAAB07-95-C-S204
CGS Contract	DAAB07-96-C-S204
Fault Isolation	BIT/Manual
LSA/LSAR	Contractor's Logistics Database
Maintainability - MTTR	Unit = 1 Hour
	DS = 3 Hours
MTBMEFF	48 HRS
New Equipment Training Plan	CEC90005
Nomenclature	AN/TSQ-179(V)2
National Stock Number	5865-01-470-4744
Line Item/BOIP Number	Z26254/Z26254
Development Specification	JA-SS-2020-001
PM Joint STARS Project Code(Fielding)	IKU
Provisioning	SFPPL
Provisioning Contract Control Number	G96EVR
Provisioning Control Code/Useable On Code	26M
Standard Study Number	W1140300GSA

1.2.4 Acquisition Streamlining

The contract for the CGS has minimized imposition of military specifications and standards on the CGS production contractor. The CGS System Specification establishes performance and functional specifications and deliverable products. As a result, the contractor has the option of using the military standards, commercial standards or other commercial practices to develop both the CGS hardware, software and supporting technical documentation. This latitude encourages the use of Commercial Off The Shelf (COTS)/Government Off The Shelf (GOTS) products, significantly reduces cost, and enables technology advancement as industrial development evolves. The impact of acquisition streamlining on logistics, as detailed in Section 2 of this SS, centers government involvement on the deliverable logistics product rather than on the detailed methodology that leads to the product.

1.2.5 Non-Development Items

As stated above, acquisition streamlining encourages the use of commercial and other state-of-the-art products and technology. In addition to selected GFE items integrated into the CGS design, the CGS includes numerous contractor selected, commercially available, components such as the items listed on Table 1-8, CGS Major Non-Development Items (NDI). As annotated on the table, NDI selected components are COTS items categorized in two distinct groups:

- Category B: Off-the -shelf items requiring no modification to hardware or software.
- Category C: Off-the -shelf items that require modification to hardware and/or software.

Table 1-8. CGS Major Non-Development Items

Environmental Control Unit (ECU)	Remote Workstation (RWS)
Digitizer	Secure FAX/Phones
Disk Array	Server
Monitors	Workstation Computer
Router	

COTS/NDI are selected to:

- Reduce development time and schedule risk.
- Reduce research and development costs.
- Provide current state-of-the-art technology.

1.2.5.1 NDI Technical Data

For items developed during the MGSM or LGSM contracts, the prime contractor will use existing technical data packages and integrate appropriate supportability related data into his CGS logistics database. For any new CGS items procured from vendors, the prime contractor will impose subcontract requirements to obtain suitable technical data for integration into his logistics database.

1.2.5.2 NDI Technology Insertion

Functional specifications established for development of the CGS permit growth and capability enhancement. Open architecture, growth space, and form and fit requirements permit the application of NDI state-of-the-art improvements as the system matures.

1.2.6 CGS Software

Ground station software was developed in accordance with ANSI/MIL-STD-1815A, DOD-STD-1467 and DOD-STD-2168 during the MGSM and LGSM contracts. This existing software will be used as the functional basis of developing CGS software. Integrated, upgraded software will be developed primarily by using COTS products. Updated software will be provided for the CGS and for the CGS Operational and Maintenance Trainers. In addition, software enhancements will be effected to improve CGS performance and to add functionality. Software related to the CGS includes the following Computer Software Configuration Items (CSCI):

- Operational Software - Implements the data storage, processing and display requirements for the CGS and the CGS trainers. This CSCI is composed of software components reused from the LGSM and various government and commercial off-the-shelf products.
- Intercom - Implements CGS intercom requirements permitting operators and observers to talk through headset/microphones. This CSCI interfaces with the Operational Software CSCI.
- Lesson Control - Implements the operational trainer requirements for the CGS and the trainers. This CSCI interfaces with the Operational Software CSCI and its databases and system event mechanisms. It also interfaces with the Lesson Development CSCI.
- Lesson Development - Implements the CGS training requirements related to creating and editing scenarios and lessons used to train CGS operators. This CSCI interfaces with the Lesson Control CSCI.
- Trainer Audio System - Implements the intercom system for the CGS trainers. This CSCI interfaces with no other CSCI.
- Fault Insertion - Used to simulate faults in the cabling of the DS Maintenance Trainer. This CSCI interfaces with no other CSCI.

The Software/Hardware configuration item interaction is depicted on Figure 1-5.

1.2.6.1 Software Development Milestones

Computer resources assessment and support procedures and schedules are summarized in Section 2, paragraph 2.6.8 of this SS.

1.2.6.2 Software and ILS

Integration of software support with the ILS effort is detailed in Section 2, paragraph 2.6.8. Computer Resources Support.

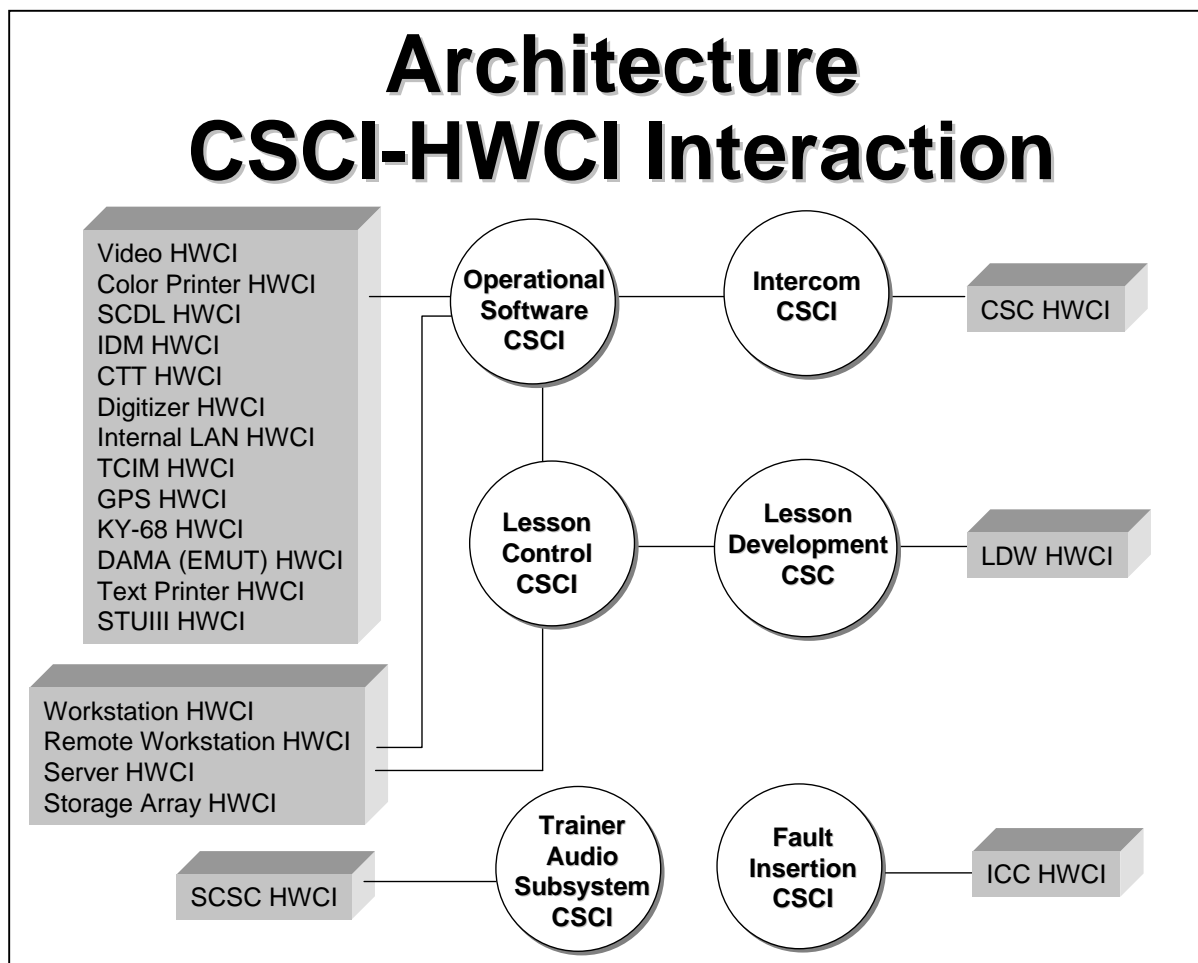


Figure 1-5. Software/Hardware Interaction

1.2.7 Replaced/Displaced Equipment

The CGS has replaced the LGSM and MGSM assets.

1.2.8 Training Devices

Two trainers have been developed and were fielded to Fort Huachuca, AZ 4Q97 to support CGS training programs; an Operator/Unit Level Trainer and a Direct Support (DS) Maintenance Trainer. These trainers are briefly described below.

1.2.8.1 Operator/Unit Level Trainer

1.2.8 Training Devices

1.2.8.1 Operator/Unit Level Trainer

The Operator/Unit Level Trainer consists of four (4) Common Ground Station Trainer Systems (CGSTS) that comprise the 32 seat trainer. The Extended Trainer Interface adds provisions for up to eight additional seats using four CGS Mission Shelters. Each CGSTS is an eight seat training system. The CGSTS's provide multiple simulator stations allowing simultaneous training of up to thirty two CGS 96H operators. Each CGSTS requires a minimum of two instructors to operate. All training scenarios are controlled from an Instructor Control System (ICS). Equipment in each CGST is configured to simulate an operational CGS as closely as possible to provide students a realistic hands-on learning environment. Refer to Figures 1-6 and 1-7 for the 32 Seat Trainer block diagram.

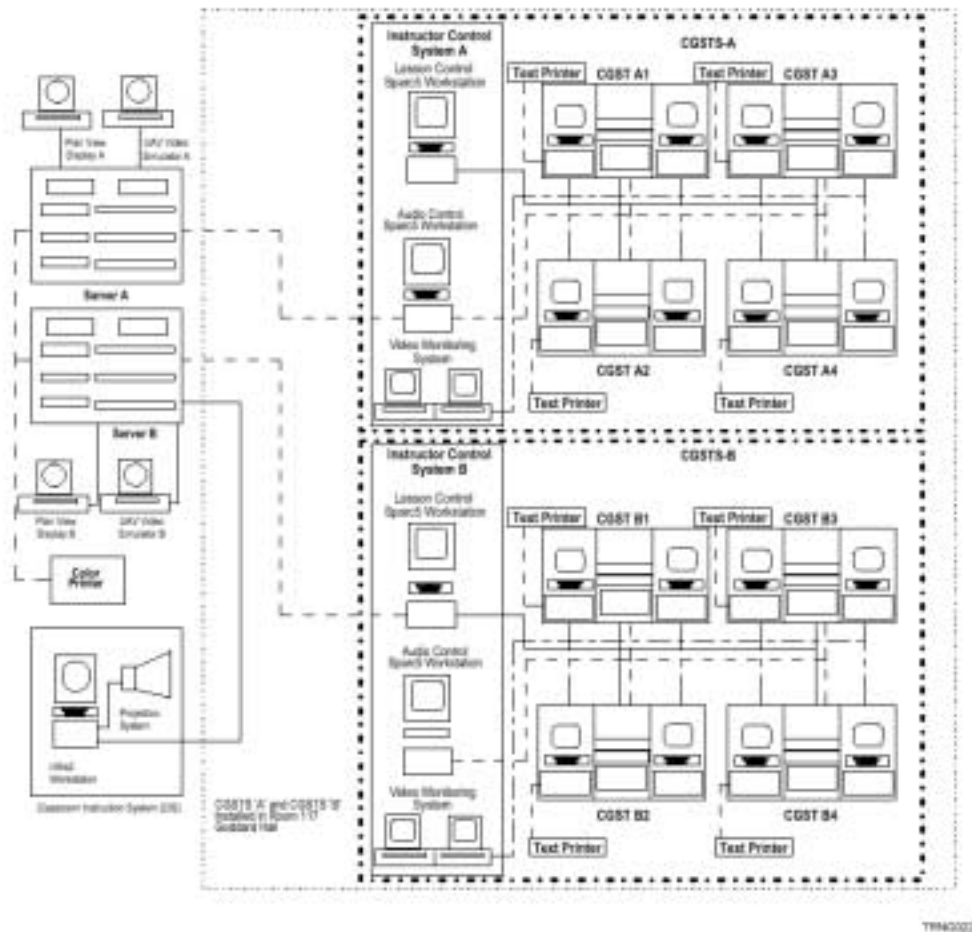
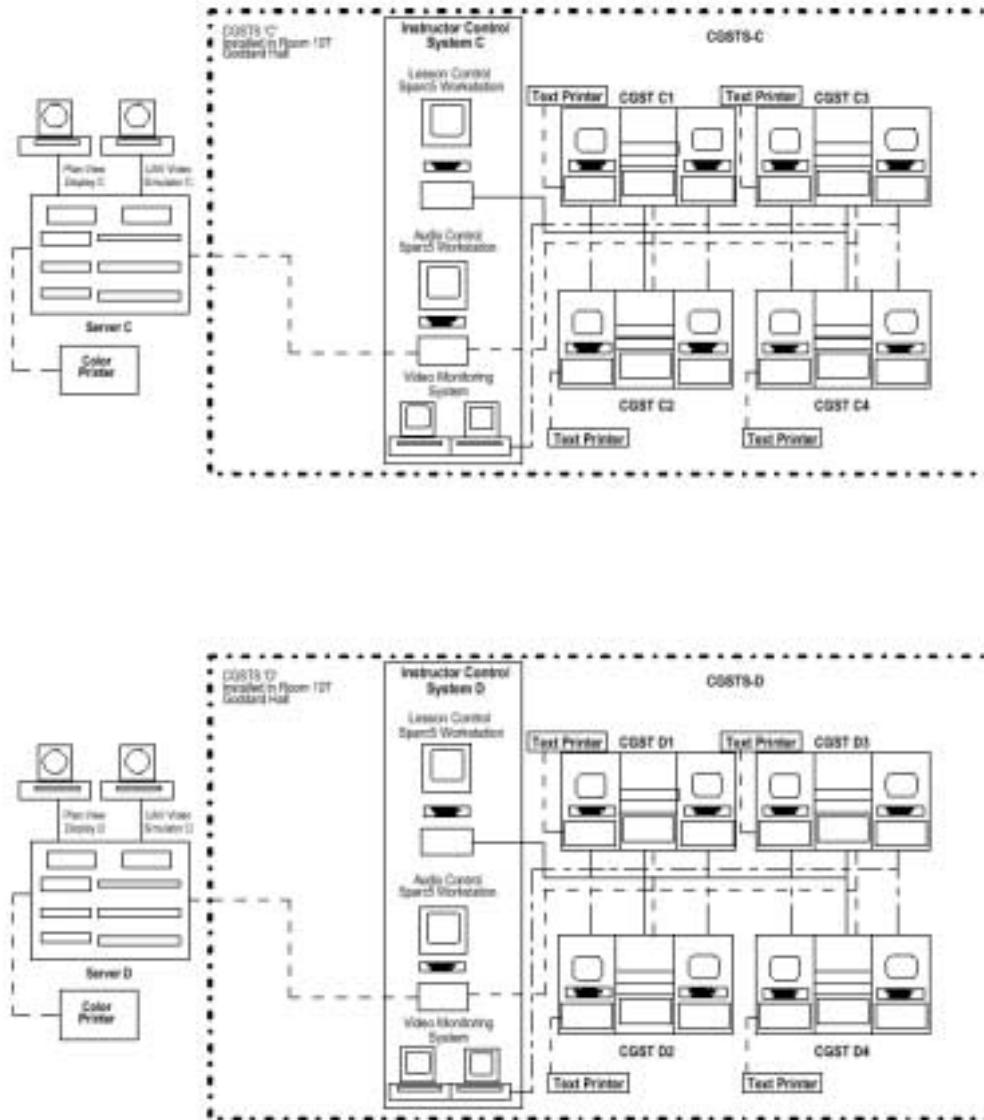


Figure 1-6. CGST Block Diagram (CGST A and CGST B)



TTNG146

Figure 1-7. CGST Block Diagram (CGST C and CGST D)

There is an Instructor Control System (ICS) for each CGSTS. ICS A and B are installed in room 117 of Goddard Hall. Refer to Figure 1-8. ICS C is installed in room 107 and ICS D is installed in room 106 of Goddard Hall. Refer to Figures 1-8 and 1-9. The following is a listing of the components of the Instructor Control System. Each Instructor Control System consists of a Lesson Control Workstation (LCW) Sun Sparc5

computer (which will be upgraded to a Cycle Computer Sun Ultra II equivalent in FY01) with 20" Sun monitor, mouse, and alphanumeric keyboard; an Audio Control Workstation (ACW) Sun Sparc5 computer (which will be upgraded to a Cycle Computer Sun Ultra II equivalent in FY01) with 20" Sun monitor, mouse, and alphanumeric keyboard; and two 20" Sun Video Repeater monitors. Under the workstation surface is a video rack with an 8:8 Video Switching System, a 116T Fasthub, a 10BaseT Hub (ICS A only), and a 1:8 Video Splitter. Each ICS has a server rack. The server rack contains a Sun Enterprise 4000 Server, a 100 gigabyte Sun Disk Array, and a Cannon BJ-30 Bubble Jet text printer.

ICS A and ICS B (located in Room 117) share a Tektronics Phaser 440 Color Printer. Each ICS has UAV Video Simulator running on an SGI Octane (which will be upgraded to a PC based MUSE UAV Simulator in FY 01) and a Plan View Display (PVD) running on an SGI Indigo2 IMPACT workstation (which will be upgraded to a PC based workstation in FY01). ICS C and ICS D (located in rooms 106 and 107) have a dedicated Tektronics Phaser 440 Color Printer, a PVD, and UAV Video Simulator. Refer to Figure 1-9 Each ICS also has an Auxiliary Rack containing four each Sony Video Disk Players, and four each 2:1 Video Switches.

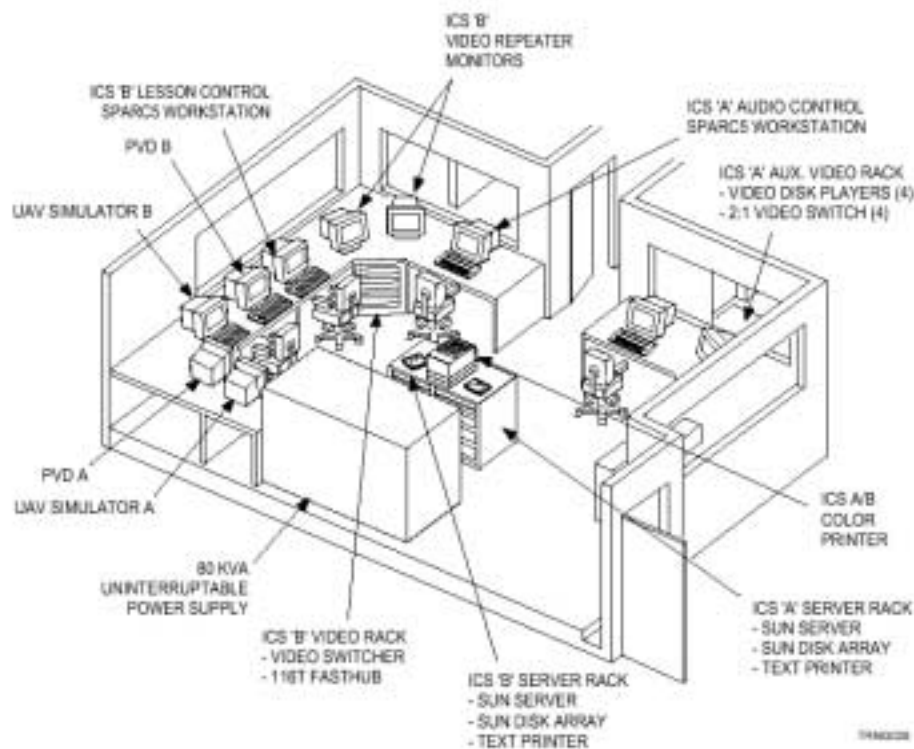


Figure 1-8. ICS A and ICS B in Room 117, Goddard Hall

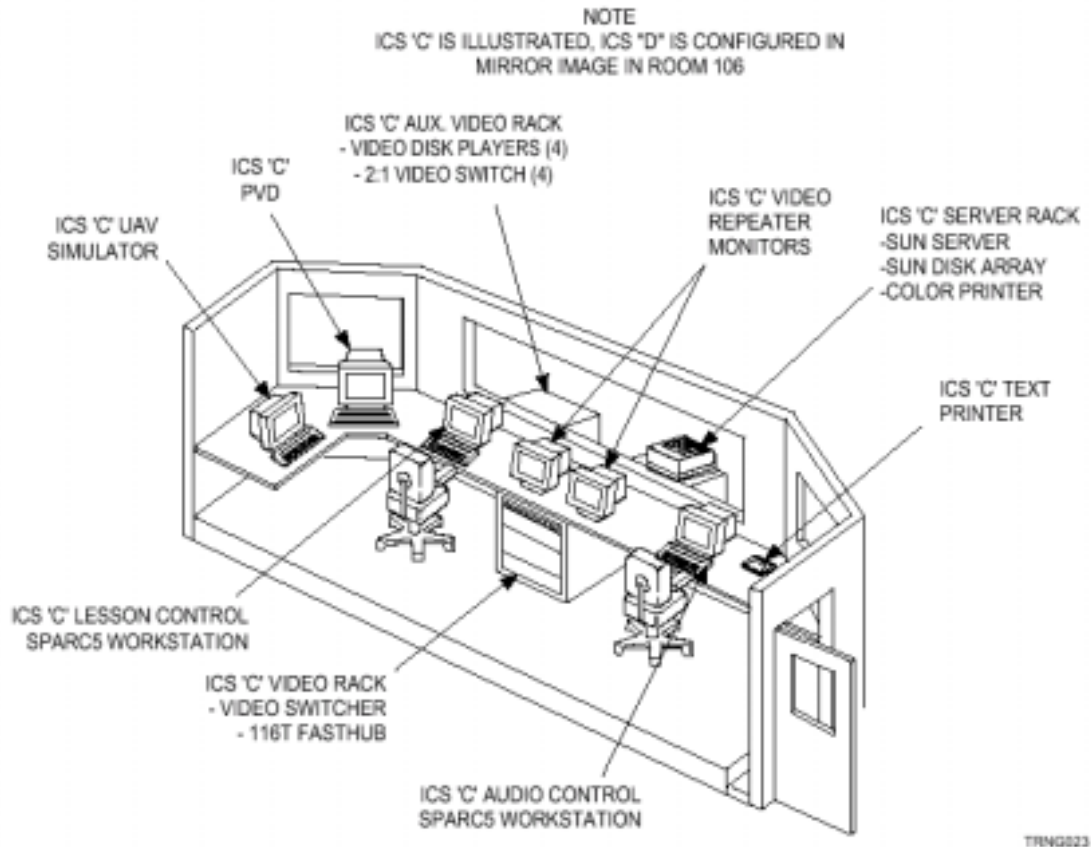


Figure 1-9. ICS C and ICS D in Rooms 106 and 107, Goddard Hall

ICS E (Figure 1-10) controls the Extended Trainer (Figure 1-11) which provides the capability to stimulate up to four CGS systems on the pad outside Goodard Hall (Figure 1-12) with the same training scenarios used on the A, B, C, and D trainers. Two unique features of ICS E is the addition of VSTARS which provides high fidelity simulation of the Air Force Joint STARS radar system and a SIPRNET interface which allows connectivity of the CGS Trainer to other DOD Schools and fielded CGS systems.

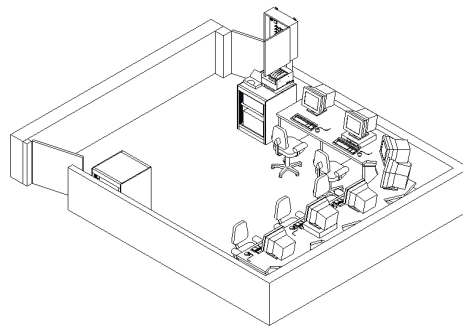


Figure 1-10. ICS E in Room 114, Goddard Hall

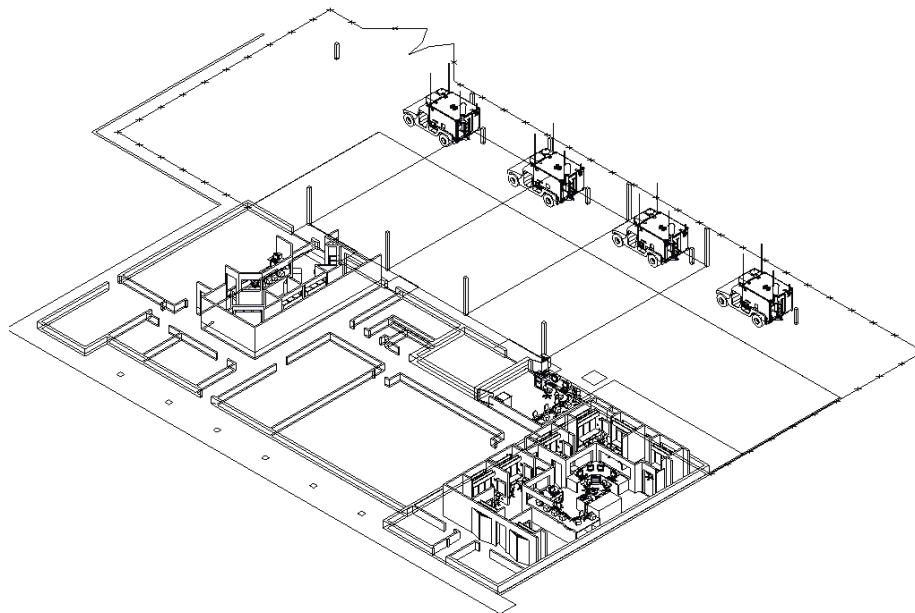


Figure 1-11. Extended Trainer

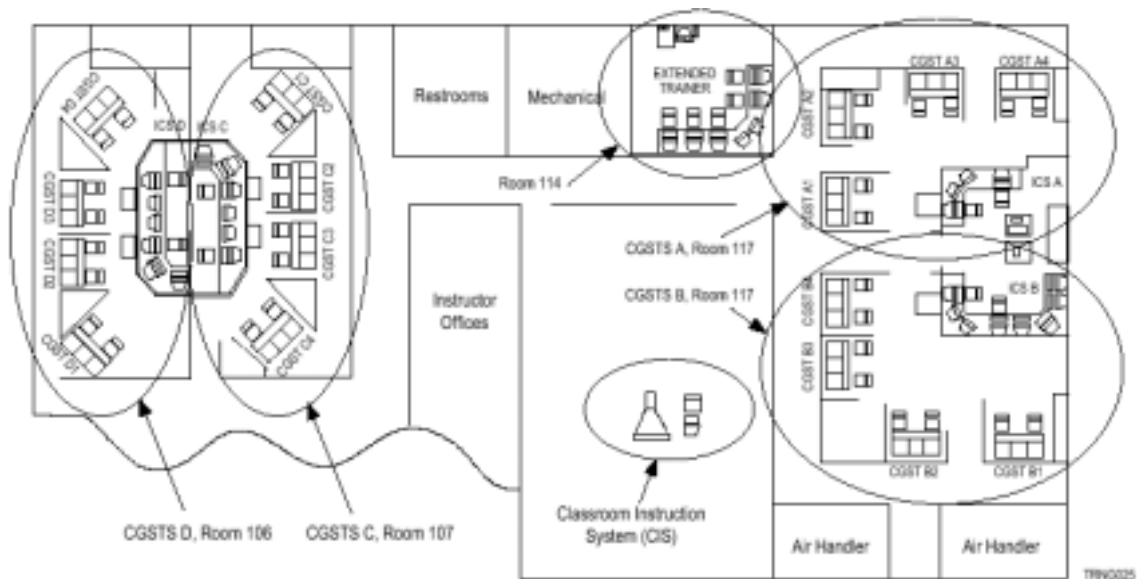


Figure 1-12. Goodard Hall Layout

1.2.8.2 CGS Maintenance Trainer

The CGS Maintenance Trainer (Figure 1-13) provides a training platform for students to develop and exercise CGS DS level maintenance skills. The software operating system and associated applications installed in the trainer are identical to the actual operating system of a fielded CGS. In addition, imagery data is archived on disks installed within the Disk Array and a CDROM. Multi-Interface Test Equipment (MITE) interfaces with the trainer allowing the operator to

establish data links such as AFATDS, ASAS and SID. Real-time GPS data is downloaded via the external antenna and GPS receiver. Sensory Interfaces of the CGS supported by the MITE include UAV video and telemetry; ARL MTI; and U-2 EMTI.

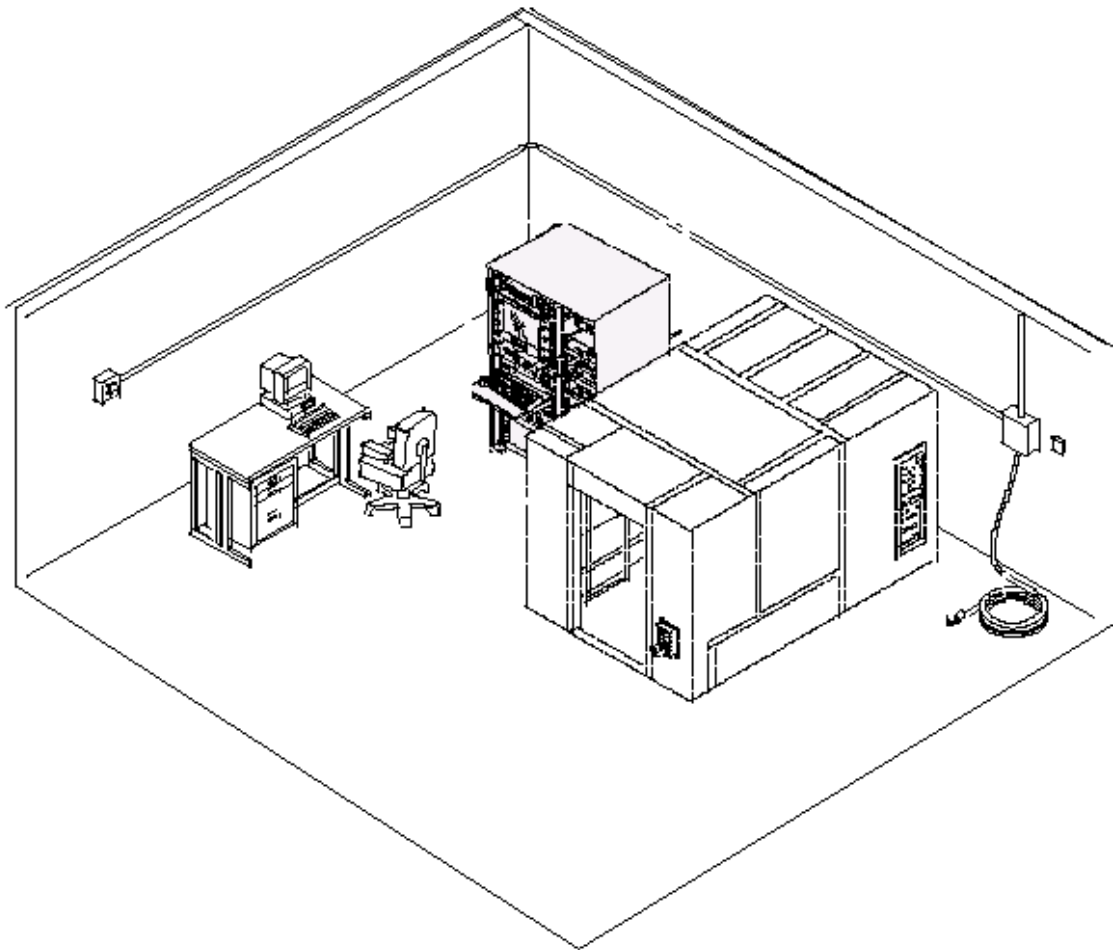


Figure 1-13. CGS Maintenance Trainer

Although the equipment in the trainer is configured to simulate an operational CGS as closely as possible, thereby providing students a realistic hands-on learning environment, there are differences between the trainer and the CGS shelters used in the field. These differences include:

- Equipment racks are installed in a unique “clam shell” design that allows the roadside and curbside walls to be opened outward to allow for additional room for student training.
- SCDL, mast assembly and LCU power cable are not installed on the trainer
- SATCOM, VHF and UHF antennas are not installed on the trainer
- Shelter door, ladder and lighting circuitry interlock switch are not installed

- Environmental equipment is replaced by fans mounted on the forward wall of the trainer
- Jump seat not installed
- Vehicle cab communications not installed
- RWS not installed
- Differences in the Power Vault

Due to the previously mentioned physical differences, and features unique to the trainer, functional differences include the following:

- CGS Maintenance Trainer has 23 Fault Insertion Relay Assemblies, referred to as FIRAs, installed within the trainer allowing the instructor to simulate cable faults within an operating CGS system. These FIRAs allow an instructor to install faults simulating open connections in various transmit, control and data lines of the CGS system. FIRAs are controlled using the Instructor Control Console, commonly referred to as the Instructor Workstation. Control lines from the Instructor Workstation are routed to the trainer via breakout boxes mounted on the back of the workstation as shown in Figure 1-14.

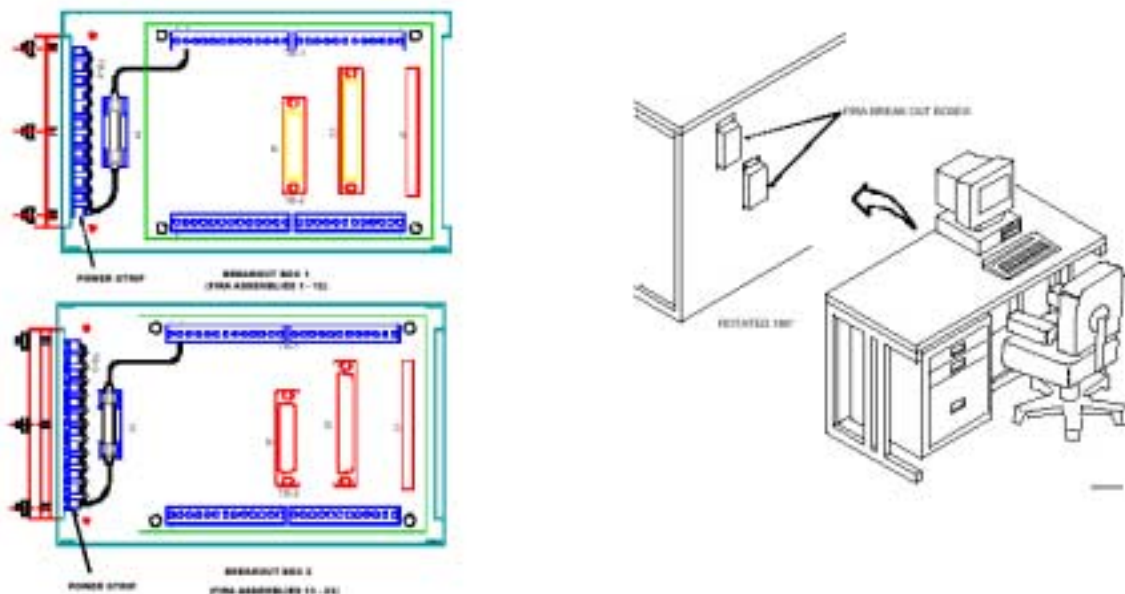


Figure 1-14. Instructor Workstation and FIRAs

- The RWS/GPFU, cab communication, SCDL and GDT equipment cabling is not installed in the trainer
- The maintenance trainer has differences in power distribution/control

between the trainer and fielded units due to differences in environmental equipment/controls, lack of GDT equipment and non-installation of the lighting circuitry door interlock switch.

1.2.9 Equipment Transition

A Materiel Transfer Plan (MTP) has been developed and staffed to transition the trainers to the U.S. Army Simulation, Training and Instrumentation Command (STRICOM). Upon receipt of final comments by STRICOM on the transition plan, CECOM will forward the transition plan to DA, and request approval of the transition of the CGS Operator and DS Maintenance trainers to STRICOM.

1.3 PROGRAM MANAGEMENT

1.3.1 ILS Manager

PM Common Ground Station (CGS) has appointed an Integrated Logistic Support Manager Integrated Product Team member, identified in Section 1.3.2.6.(Figure 1-8) who is responsible for the overall planning, coordination, and execution of logistics actions related to the development and acquisition of the CGS.

The ILS Manager ensures the successful outcome of ILS by:

- Monitoring CGS development.
- Coordinating ILS efforts to influence design and supportability.
- Integrating logistics work effort with the contractor and matrix technical area specialists, the user, testers, and evaluators.
- Overseeing support analyses.
- Reviewing and approving ILS milestone schedules.
- Overseeing preparation of the CGS Materiel Fielding Plan (MFP).
- Developing ILS strategy, plans, processes, and the interface requirements for the post production support.
- Participating in Logistics IPTs with the prime contractor.
- Coordinating discussion topics for IPTs and attendance of required logistics technical specialists to support the IPTs.
- Providing Fielding Support

1.3.2 Organizational Relationships

The following paragraphs describe the relationships between the Army Project Manager's (PM) Office at Fort Monmouth with the Air Force Joint STARS Program Office (JPO) at Hanscom AFB, with PEO-IEW, TRADOC System Manager (TSM) at Fort Huachuca, the prime contractor, and with other supporting organizations responsible for actions related to the development of the CGS. Annex C of this SS provides a detailed list of Points Of Contact (POC) within PM Common Ground Station Office and the supporting organizations.

1.3.2.1 Army Project Manager Common Ground Station (CGS)

PM CGS (Army) is responsible for management of all Common Ground Station development programs. Figure 1-15 is the organizational chart for the Army PM's Office. Within the PM's Office the CGS Project Leader is responsible for implementation and coordination of CGS development, procurement and fielding. The Project Leader and staff members of the Army Project Manager's Office interface with POC in offices described in subsequent paragraphs.

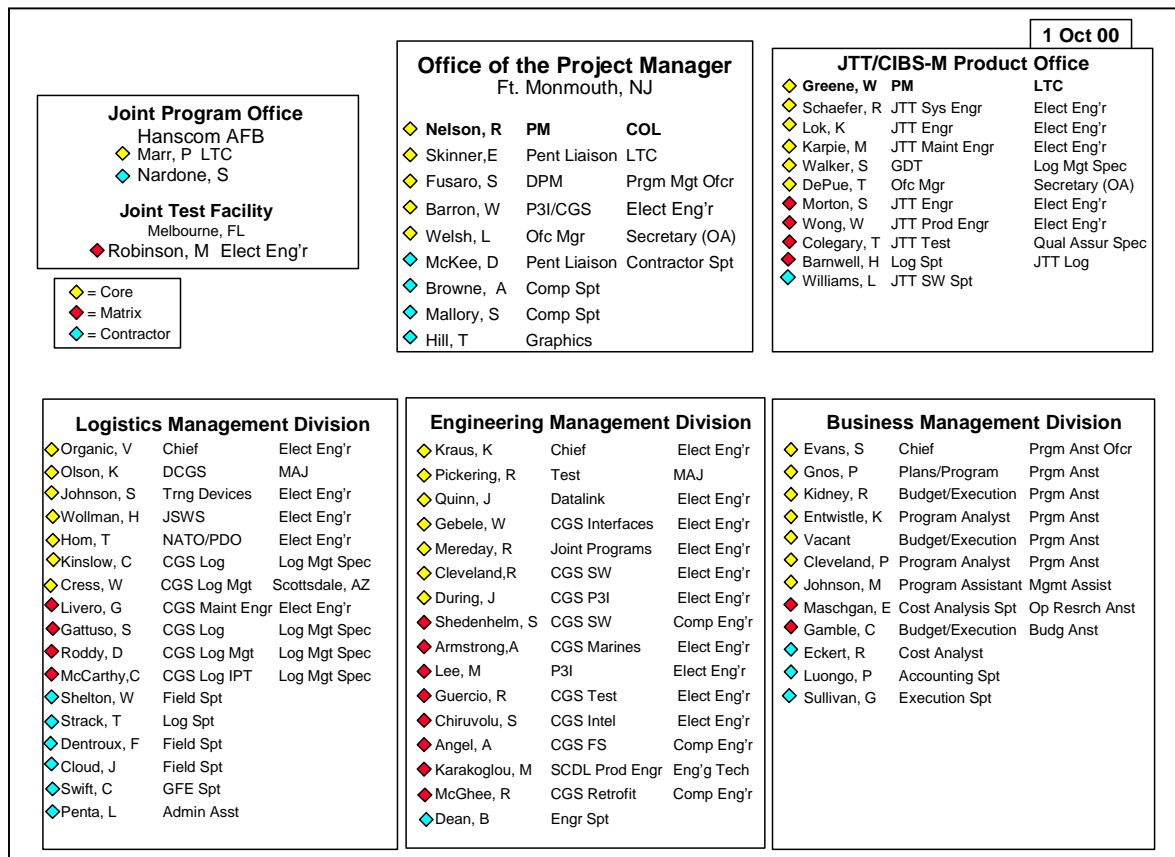


Figure 1-15. Army Project Manager's Office

1.3.2.2 Joint STARS Joint Program Office

The Joint STARS acquisition effort is defined in Air Force Program Management Directive (PMD) Number (19)/64770F/63770F27581F dated 11 March 1987. This PMD designates the Air Force as the Executive Service for Joint STARS. The Air Force and Army participate in a JPO which has complete management responsibility for the Joint STARS Program. The Joint Program Director, appointed by the Air Force, has program management responsibility and the authority for day-to-day management decisions. The Deputy Program Director (DPD) is appointed by the Army. The DPD also serves as the Army Project manager responsible for the development of all Joint STARS ground stations.

1.3.2.3 Program Executive Office-Intelligence, Electronic Warfare & Sensors (PEO-IEW&S)

The PEO-IEW&S of the Army Acquisition Executive (AAE) is the Materiel Developer (MATDEV) responsible for the development, test, production, and fielding of the Joint STARS CGS. The PEO provides the personnel to staff the Joint STARS Project Manager's Office at Fort Monmouth, New Jersey.

1.3.2.4 TRADOC System Manager

The Training and Doctrine Command (TRADOC) has established a TRADOC System Manager's (TSM) Office for the Army's ground stations. The TSM, located at Fort Huachuca, Arizona, is the Combat Developer (CBTDEV) and acts as the user's representative in the development process. The TSM participates in Technical Interchange Meetings (TIM) and Logistics IPTs, technical product verification, all design and program reviews and is a voting member in the materiel decision reviews. Figure 1-16 provides the organizational chart for the TSM Office.

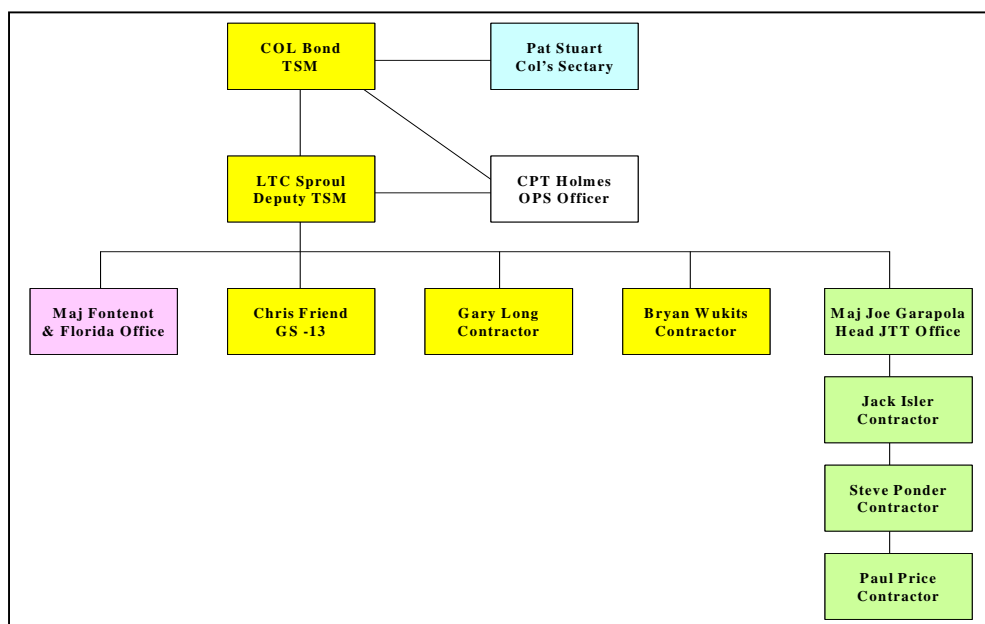
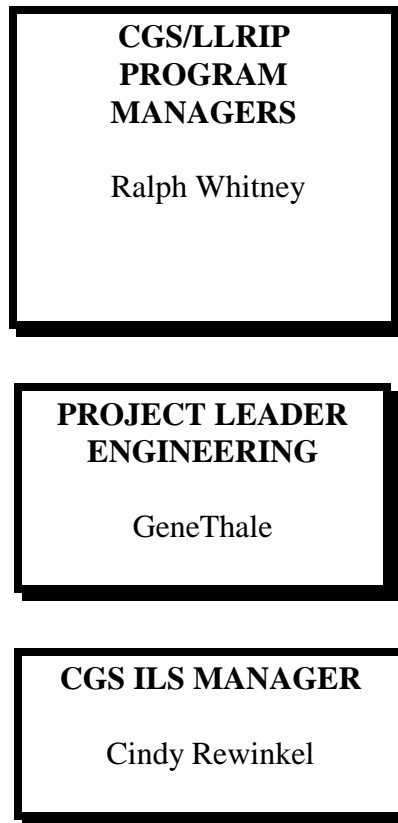


Figure 1-16. TRADOC Systems Manager's Office

1.3.2.5 Prime Contractor

Motorola Incorporated, Space and Systems Technology Group (SSTG), Government Electronics Division, located in Scottsdale, Arizona is the prime contractor for CGS development. The contractor's organization for the CGS production contract is provided at Figure 1-17.



TRAINING	TECH PUBS	LOG ANALYSES	PROVISIONING	SAFETY
Arleen Perez	Clint Glenn	Brian Baily	Ted Duarte	John MacDonald
Bonnie Davis	Craig Shields	Steve Kalafus		
Bob Black	Tony Corbelli	Dennis Brack		
Lori Maiello	Tom Silbbio	Jim Valkos		
Robert Lopez	Jon Ferguson			
Raul Sanchez				

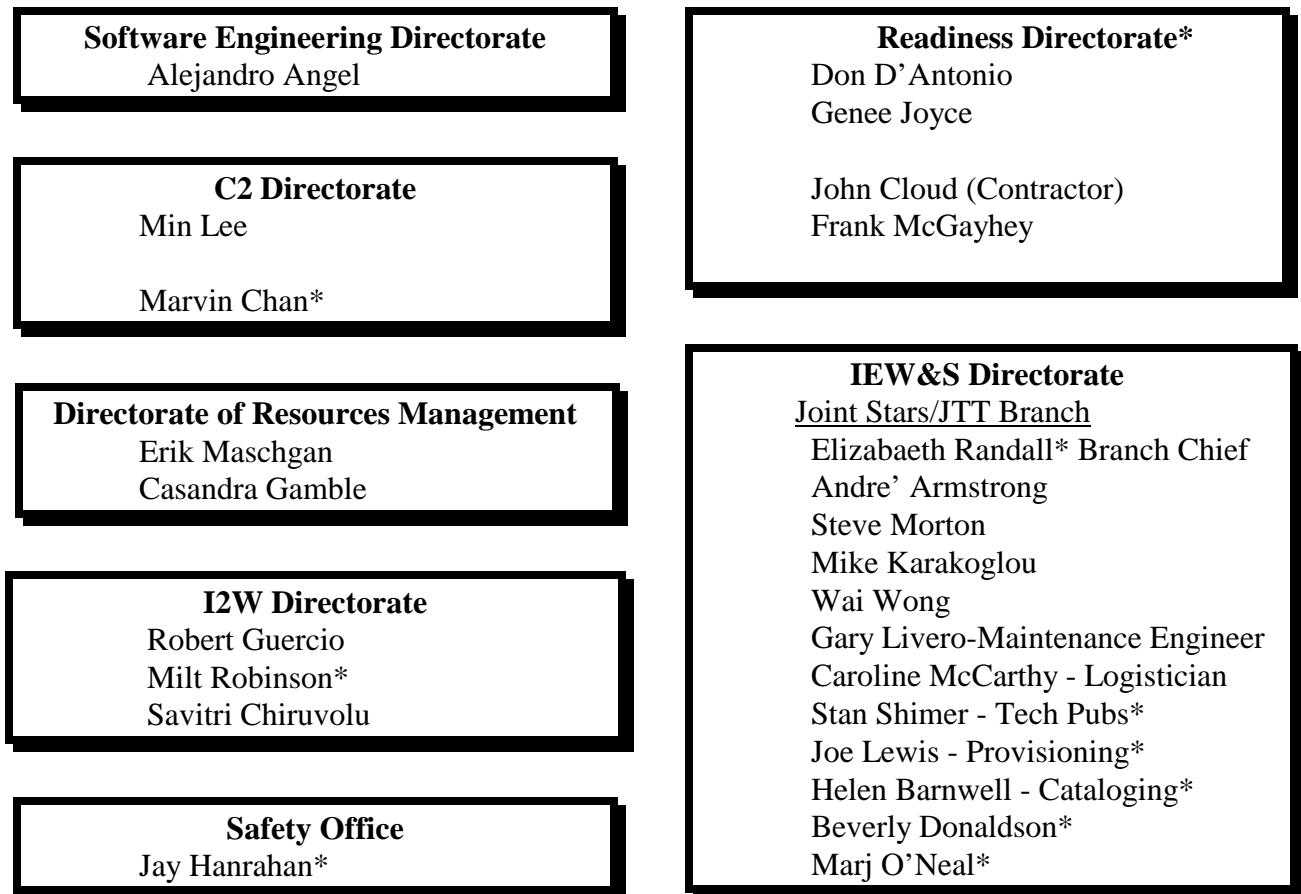
Figure 1-17. Contractor's Program Organization

1.3.2.6 Logistician

The DA DCSLOG is designated as the Logistician for development of the Army ground stations. DA DCSLOG participates in all CGS design, program and logistics IPTs and is a voting member in the milestone decision process.

1.3.2.7 Communications - Electronics Command

The Communications - Electronics Command (CECOM), Logistics Readiness Center, IEW&S Directorate and offices at Fort Monmouth provide support to the Project Manager CGS (Army) in the various engineering specialties and logistics technical areas related to CGS hardware and software acquisition and support. Figure 1-18 depicts on-site CECOM engineering and on site/off site logistic support personnel involved in support of the CGS development



* OFF SITE

Figure 1-18. CECOM Support Personnel

1.3.3 Logistics IPTs

The Vision Statement for the CGS Logistics IPT states the following: “To successfully field a technically supportable system, meeting all customer’s needs in the process”. Logistics IPTs are the forum for the government and the government and contractor to initiate and status logistics efforts for the CGS. Logistics IPTs goals are to:

- Maintain effective and continuous coordination through the IPT process.
- Achieve FUED with all ILS contract deliverables completed on time.
- Maintain a high level of readiness by providing continuous follow-on support.

The Logistics IPT Objectives are to:

- Identify the players and their roles in support of the CGS
- Develop a mindset that configuration management effects the entire ILS process and requires continuous coordination
- Understand the IPT process will evolve as the communication increases
- Provide the latest CGS status to the ILS community
- Identify issues and concerns
- Develop interest and challenge amongst the IPT Team to foster team spirit

CGS logistic reviews are accomplished as part of Logistics IPTs with the contractor. These reviews monitor the CGS development contractor's logistics data. The team reviews design and system engineering input to the logistic database, output products from the database and other analysis data developed by the contractor as input to the CGS logistics database.

1.3.4 ILS Managerial Environment

The management objective for CGS development is to facilitate a partnership between the prime contractor and the Government to satisfy the ILS requirements specified by the user in the ORD. This partnership is the basis for continuous process improvement and delivery of the most effective products for the soldier in the field. Within this environment, all participants in the CGS development place emphasis on quality leadership, teamwork and a commitment to quality. This environment fosters trust and a true spirit of mutual benefit, the ability to act, and a willingness to trust each other.

1.3.5 CGS Technical Interfaces

The CGS ILS Manager is responsible for ILS interfaces with system design, system engineering and test. Both Government and contractor ILS Managers attend all hardware/software design reviews, TIMs and Logistics IPTs and participate in all meetings and working groups where logistics impact is anticipated.

1.3.5.1 Configuration Management

Configuration Management (CM) for the CGS will remain with the prime contractor for the life cycle. The CM process documents functional and physical characteristics of CGS hardware and software and then controls all changes to these characteristics. The interface between ILS and CM is critical to ensure that current design is contained in logistics documentation.

1.3.5.2 Computer Resources

Systems Engineering IPTs for the CGS report the software development effort and computer related resources. This IPT establishes processes to develop, measure and control ground station computer resources.

1.3.5.3 Test Integration Working Group

A Test Integration Working Group (TIWG) for the CGS conducts test planning and coordination.

1.3.6 ILS Studies and Investigations

Overall ILS requirements, planning, and execution are continually being evaluated and updated to ensure that support objectives are met. At this time, the PM is investigating possible ways to streamline the repair and spare process. Thus reducing overall operational costs and decreasing cycle times.

1.4 APPLICABLE DOCUMENTS

The following documents relate to the CGS and establish or support development and/or provide guidance or information required for the CGS development and supportability.

1.4.1 Joint STARS

- a. Joint STARS - Joint Services Operational Requirement (JSOR), 1 April 1987.
- b. TAC/TRADOC - Joint System Operational Concept (JSOC), June 1986.
- c. Joint STARS FSD Program Integrated Support Plan (ISP) Grumman, Melbourne Systems, January 1990.

1.4.2 Ground Station Module/Common Ground Station

- a. Acquisition Strategy for Joint STARS Ground Station Module/Common Ground Station, 17 July 2000.
- b. (U) Operational Requirements Document (ORD) for the Joint Surveillance Target Attack Radar System Ground Station Module and Common Ground Station, 8 Aug. 2000.
- c. Common Ground Station System Specification, JA-SS-2020-01.
- d. GSM Baseline Cost Estimate (BCE), January 1993.
- e. Statement of Work for Common Ground Station Production and Support, 19 Aug. 1999.
- f. New Equipment Training Plan (NETP), No. CEC90005.
- g. Basis of Issue Plan (BOIP), 17 Nov. 2000. (Draft)
- h. Qualitative and Quantitative Personnel Requirements Information (QQPRI).
- i. Standard Study Number (SSN) W1140300GSA.
- j. System Security Authorization Agreement (Draft). July 2000.
- k. Material Fielding Plan for the Common Ground Station AN/TSQ-179(V)2 (Tailored for each fielding), latest update Dec. 2000.
- l. Test and Evaluation Master Plan (TEMP), dated April 1999.
- m. Manpower Estimate Report (MER), dated April 1999.
- n. System Threat Assessment Report (STAR), dated July 1998.
- o. Simplified-Key Management Plan (S-KMP), dated 23 March 1999.
- p. Operational Test Plan (Draft), November 2000.

1.4.3 Government Furnished Information

Interface documentation required for the CGS GFE will be provided as Government Furnished Information (GFI) to the contractor. All integrated GFE will be maintained in accordance with its own maintenance concept as defined in the GFE technical manuals. (See GFE Status Report

Table 1-10). CGS technical manuals have been developed and were updated with each integration of the P3Is. As the system integrator, the contractor is responsible for developing appropriate interface for the GFE in the CGS manuals. Procedures to install and remove the GFE in or from the CGS are documented within the CGS manuals. Any unique operating procedures for operation or maintenance of the GFE item within the CGS are documented in the CGS manuals. Table 1-9 identifies the GFE Technical Manuals used with the CGS.

Table 1-9. Technical Manuals for Integrated GFE	
TM 3-4230-214-12&P	Operator, Organizational Maintenance and Parts Manual for Decontamination Apparatus (M13)
TM 3-4230-216-10	Operator's Manual for Decontamination Kit (M258A1)
TM 3-4240-325-20&P	Unit Maintenance Manual (Including RPSTL) for Filter Unit. Gas-Particulate: 100CFM. 120V. 50, 60 and 400 Hz, M93
TM 3-6665-307-10	Operators Manual for Chemical Agent Detector Kit (M256A1)
TM 3-6665-312-12&P	Operator and DS Maintenance Manual Including RPSTL for Automatic Chemical Agent Alarm (M8A1)
TM 3-6665- 312-30&P	DS Maintenance & RPSTL for Automatic Chemical Agent Alarm (M8A1)
TM 3-6665-321-13&P	Operator. Unit Maintenance Manual & RPSTL for Maintenance Kit. CBR M273
TM 3-6665-327-13&P	Operator, Organizational & DS Maintenance & Parts Manual for Chemical Agent Alarm (CAM)
TM 9-2320-280-10	Operator's Manual for Truck, Utility: Cargo/Troop Carrier 1 ¼ Ton 4X4, M998 Series (HMMWV)
TM 9-2320-280-10HR	Operator's Hand Receipt (HMMWV)
LO 9-2320-280-12	Operator's Lubrication Order (HMMWV)
TM 9-2320-280-20	Unit Maintenance Manual (HMMWV)
TM 9-2320-280-20P	Organizational Maintenance RPSTL (HMMWV)
TM 9-2320-280-34	DS/GS Maintenance Manual (HMMWV)
TM 9-2320-280-34P	DS/GS RPSTL (HMMWV)
TM 9-2320-392-14&P	Trailer, High Mobility 1102
TM 9-2815-253-24P	RPSTL for Diesel Engine, Model #DN4M (MEP-803A)
LO 9-2815-253-12	Lubrication Order: Diesel Engine #DN4M (MEP-803A)

Table 1-9. Technical Manuals for Integrated GFE	
TM 9-6115-642-10	Operator's Manual, Generator Set, Tactical Quiet. 10KW (MEP-803A)
LO 9-6115-642-12	Lubrication order: Generator Set, Skid Mtd, Tactical Quiet. 10 Kw (MEP-803A)
TM 9-6115-642-24	Unit, DS/GS Maintenance Manual, Generator Set, Skid Mtd. Tactical Quiet, 10 kW (MEP-803A)
TM 9-6115-642-24P	RPSTL: Generator Set, Tactical Quiet, 10 kW (MEP-803A)
TM 11-5810-256-12	Operator's and Organizational Maintenance Manual for COMSEC, (KY-57)
TM 11-5810-256-30	DS/GS Maintenance Manual for COMSEC (KY-57)
TM 11-5810-256-34P	DS/GS RPSTL for COMSEC (KY-57)
TM 3-4230-214-12&P	Operator, Organizational Maintenance and Parts Manual for Decontamination Apparatus (M13)
TM 3-4230-216-10	Operator's Manual for Decontamination Kit (M258A1)
TM 3-4240-325-20&P	Unit Maintenance Manual (Including RPSTL) for Filter Unit. Gas-Particulate: 100CFM. 120V. 50, 60 and 400 Hz, M93
TM 3-6665-312-12&P	Operator and DS Maintenance Manual Including RPSTL for Automatic Chemical Agent Alarm (M8A1)
TM 3-6665- 312-30&P	DS Maintenance & RPSTL for Automatic Chemical Agent Alarm (M8A1)
TM 3-6665-321-13&P	Operator. Unit Maintenance Manual & RPSTL for Maintenance Kit. CBR M273
TM 9-2320-280-10	Operator's Manual for Truck, Utility: Cargo/Troop Carrier 1 ¼ Ton 4X4, M998 Series (HMMWV)
TM 9-2320-280-10HR	Operator's Hand Receipt (HMMWV)
LO 9-2320-280-12	Operator's Lubrication Order (HMMWV)
TM 9-2320-280-20	Unit Maintenance Manual (HMMWV)
TM 9-2320-280-20P	Organizational Maintenance RPSTL (HMMWV)
TM 9-2320-280-34	DS/GS Maintenance Manual (HMMWV)
TM 9-2320-280-34P	DS/GS RPSTL (HMMWV)
TM 9-2320-392-14&P	Trailer, High Mobility M1102
TM 9-2815-253-24P	RPSTL for Diesel Engine, Model #DN4M (MEP-803A)

Table 1-9. Technical Manuals for Integrated GFE	
LO 9-2815-253-12	Lubrication Order: Diesel Engine #DN4M (MEP-803A)
TM 9-6115-642-10	Operator's Manual, Generator Set, Tactical Quiet. 10KW(MEP-803A)
LO 9-6115-642-12	Lubrication order: Generator Set, Skid Mtd, Tactical Quiet. 10 Kw (MEP-803A)
TM 9-6115-642-24	Unit, DS/GS Maintenance Manual, Generator Set, Skid Mtd. Tactical Quiet, 10 kW (MEP-803A)
TM 9-6115-642-24P	RPSTL: Generator Set, Tactical Quiet, 10 kW (MEP-803A)
TM 11-5810-256-12	Operator's and Organizational Maintenance Manual for COMSEC, (KY-57)
TM 11-5810-256-30	DS/GS Maintenance Manual for COMSEC (KY-57)
TM 11-5810-256-34P	DS/GS RPSTL for COMSEC (KY-57)
TM 11-5810-292-13&P	Operator's, Unit, DS Maintenance Manual for General Purpose Tape Reader (KOI-18)
TM 11-5810-312-12&P	Operator, Unit Maintenance Manual for Mounting Base MT-6429/VRC
TM 11-5810-312-34&P	DS/GS Maintenance Manual & RPSTL for Mount, MT-6429/VRC
TM 11-5810-329-10	Operator's Manual for Digital Subscriber Voice Terminal (KY-68)
TM 11-5810-329-23	Organizational and DS Maintenance Manual for DSVT (KY-68)
TM 11-5810-329-24P	Organizational, DS/GS RPSTL for DVNT (KY-68)
TM 11-5820-401-12	Operator's and Unit Maintenance Manual for Control Radio, C-2299/VRC & Handset H-250/U
TM 11-5820-401-20P	Unit Level RPSTL for Control Radio (C-2299/VRC)
TM 11-5820-890-10-1	Operators Manual for SINCGARS Radio Set, AN/VRC-92D
TM 11-5820-890-10-7	Net Control Station Guide for AN/CYZ-10 & AN/PSN-11
TM 11-5820-890-20	Unit Maintenance Manual for SINCGARS Radio Set (AN/VRC-92D)
TM 11-5820-890-20P	Unit Level RPSTL for SINCGARS Radio Set, AN/VRC-92D

Table 1-9. Technical Manuals for Integrated GFE	
TM 11-5820-890-30	DS Maintenance Manual for SINCGARS Radio Set, AN/VRC-92D
TM 11-5820-890-30P	DS Level RPSTL for SINCGARS Radio Set, AN/VRC-92D
TM 11-5820-1130-12&P	Operator's and Unit Maintenance Manual & RPSTL for Radio Set EMUT AN/PSC-5
TM 11-5820-1130-30&P	Direct Support Maintenance Manual & RPSTL for Radio Set AN/PSC-5
TM 11-5820-1026-13&P	Maintenance Instructions Manual, Operator's, Unit, Direct Support & RPSTL for GDT 9OZ-64/GRY
TM 11-5820-1147-13&P-2	Supplemental Maintenance Instructions for RT-1319B
TM 11-5820-1149-14&P	Operator, Unit, DS/GS Maintenance Manual & RPSTL for Radio Set, AN/VRC-83 (V)3
TM 11-5825-291-13	Operator, Organizational and DS Maintenance Manual for GPS (AN/PSC-11)
TM11-5895-1617-12&P	Operator and Unit Maintenance Manual and RPSTL for Commander's Tactical Terminal (CTT) (AN/USC-55)
TM 11-5895-1617-30&P	DS/GS Maintenance Manual and RPSTL for Commander's Tactical Terminal (CTT) (AN/USC-55)
TM 11-5965-255-14&P	Operator's, Organizational, DS/GS Maintenance Manual and RPSTL for Loudspeaker (LS-454/U)
TM 11-6625-3052-14	Operator, Unit, DS/GS Maintenance Manual for Multimeter, AN/PSM-45A
TM 43-0001-26-1	Maintenance Kit CBR (M273)
TO 31R2-2VRC-83-1	Operator's Manual, Controls and Operation, Radio Set, AN/VRC-83(V)1
TO 31R2-2VRC-83-1-1	Supplemental Operator's Manual for Radio Set, AN/VRC-83(V)1

Table 1-10. GFE Status Report (EQUIPMENT)

Table 1-10 GFE STATUS REPORT (EQUIPMENT)				
NSN	Nomenclature	P/N	Description	Qty per Shelter
MK-2499/VRC				
5310-00-880-7746		M51968-5	Hardware, Nut, Plain, Hexagon	6
5820-01-220-7901	MT-6429/VRC	A3014052-1	Base, Mounting, MT-6429/VRC	1
5310-01-243-9429		A3014064-1	Hardware, Strip Nut	2
5310-00-081-4219		MS27183-12	Hardware, Flat Washer	2
5975-00-111-3208		MS3367-5-9	Hardware, Strap Tie-down	6
5320-00-889-2527		MS45904-72	Hardware, Lock Washer	6
5306-00-225-9089		MS90726-34	Hardware, Hex Nut Screw	4
5306-00-225-9086	(100 Per Box)	MS90726-31	Hardware, Hex Cap Screw	4
5310-00-880-7746	(100 Per Box)	MS51968-5	Hardware, Nut, Plain, Hexagon	6
AN/VRC-83 Radio Set				
5995-01-154-0140		566084-808	KY INTERCONNECT CABLE	
5820-01-193-7347	AM-7176A/VRC	811830-802	Adaptor, Vehicular	1
5975-01-192-0722		812097-803	Mount, Shock	1
5995-01-154-1957		8140762	Cable Assembly (W2)	1
5995-01-154-0138		566083-809	KEEP ALIVE CABLE	1
5995-01-154-1953		565949-801	POWER CABLE	1
5820-01-135-6290	RT-1319B/URC	914858-803	Receiver-Transmitter	1
AN/VRC-92A SINCARS				
5995-01-304-2026		A3013824-2	Cable Assembly (W2)	1
5895-01-188-8819	AM-7239/VRC	A3013365-1	Adapter, Mounting	1
5895-01-195-4844	AM-7238/VRC	A3013357-1	Amplifier, Power	2
5995-01-310-0335		A3013735-5	Cable Assembly (W4) & (W7)	2
4020-00-908-6416		SC-C-208747	Fiber Rope Assy, tie-down	2
5895-01-234-8093	RT-1523(C)/U	A3017833-1	Receiver/Transmitter (ICOM)	2
5985-01-297-2971	AS-3900/VRC	A3017899-1	Antenna, Center-Fed W/Base	2
5975-01-188-8873	MT-6352/VRC	A3013367-1	Mounting Base	1
5340-01-201-7147		A3140103-1	Locking Bar	1
Batteries				
6135-01-214-6441	BA5372/U	BA5372/U	Battery, Lithium (For ICOM SINCARS	1
	RADIO) (1 EA)			
6135-01-301-8776		221-0500-020	Battery Non-chargeable (GPS PLGR)	1
6135-01-069-8575	BA5599/U	BA5599/U	Battery Primary, Lithium (For GDT) (1 Ea)	1
6135-00-801-3493	BA1372/U	TR115	Battery, Dry	1
Cab Radio Kit				
5820-00-892-3340	C-2299/VRC	SM-D-415186	Control, Cab Radio set	1
5995-00-823-2833	CX-4723/VRC	SM-D-415553-5	Cable, Spec (5 Ft)	1
5965-00-043-3463	H-250A/U	SM-D-889337	Handset	2
5965-00-876-2375	LS-454/U	SM-D-436326	Loudspeaker, Intercomm	1
5995-00-823-2835	CX-4723/VRC	SM-D-415553-8	Cable, Spec (8 Ft)	1
5995-01-218-6464	CX-13290/VRC	A3014035-2	Cable, Assembly (15 FT)	1

Table 1-10 GFE STATUS REPORT (EQUIPMENT)				
NSN	Nomenclature	P/N	Description	Qty per Shelter
5995-01-219-2009	CX-13290/VRC	A3014035-1	Cable, Assembly (9 FT)	1
5895-01-151-9914	C-11291/VRC	A3148258-1	Control Monitor	1
COMSEC				
5895-01-250-2417	TSEC/KY-68	0N273805	Terminal, DSVT	1
5810-01-368-7752	KGV-8C/TSEC		Encrypter/Decrypter	1
5810-01-393-1973	AN/CYZ-10	ON477400-8	Electronic Transfer Device	1
5810-00-434-3644	TSEC/KY-57	0N241700	Speech Security	2
5810-01-026-9620	KOI-18	OA190315	TAPE READER, MULTIPURPOSE	1
5810-01-066-7587		0N512424	Cable	1
5995-01-379-9689		A3197259	CABLE	1
5810-01-430-4225	KIV-7 HSA	4075800-0501	Encryption-Decryption Device	1
5810-01-146-3260	KG-84A	ON278636	Key Generator	1
GDT Data Link				
5998-01-374-4271		261564-1	EMI/EMP Filter Assembly	1
5998-01-374-4294	CV-40242/G(V)3	265400-1	Converter, (AC/AC)	1
5998-01-375-0381	AS-4104/G(V)3	270840-1	Antenna Assembly (Masthead)	1
6145-01-372-5434		232797-1	Cable Assembly (LCU-JSIU, Data)	1
			Stowage Case	1
		270845-1	Antenna Handling Fixture	1
5820-01-385-8516	C-11888/G(V)3	261510-1	Control Unit, Lower (LCU)	1
		270918-1	Antenna Extension Cable (1A14W11)	1
		270918-2	Antenna Extension Cable (1A14W18)	1
6145-01-372-5435		232796-1	Cable Assembly (LCU-JSIU, Power)	1
	1A14W3			
6145-01-372-5436		232798-1	Cable Assembly (AC/DC-LCU) 1A14W4	1
5998-01-374-4295	C-11889/G(V)3	261900-1	Interface Unit (JSIU)	1
		270917-1	Antenna Cable (1A14W9) Mast Cable	1
		270836-1	Shipping Container, Masthead	1
			Stowage Case	1
5995-01-407-2194		261556-1	Cable Assembly (LCU-EMI) 1A14W1	1
5995-01-406-5829		265490-1	Antenna Support (Tripod)	1
		270917-2	Antenna Cable (Landline Adapter)	1
	1A14W9S			
Improved Data Modem				
5895-01-372-0114		DM001-301	Improved Data Modem (IDM)	1
JTT/H3				
		CC59B-5	Cable, DC Power	1
5895-01-359-7451			Case, Hard Transit	1
		1FG11-C-BMM-5	Adapter Connector	1
5895-01-383-1090	AN/USC-55	A3111554-001	JTT/H3 System Terminal, 3 Channel R/T	1
Misc Equipment				
4210-00-270-4512		5RC02	Fire Extinguisher CO 2 (w/Bracket)	3

Table 1-10 GFE STATUS REPORT (EQUIPMENT)				
NSN	Nomenclature	P/N	Description	Qty per Shelter
6145-00-910-8847	WF16U	A3086481	Cable, Telephone, 4 Wire (1 Mile Spool)	1
6545-00-922-1200		SC-C-6545	Kit, First Aid, General Purpose	2
2540-00-968-4060		8690527	Strap, Webbing (f/Gas Can Mount)	3
5965-01-121-2319	H10-76	H10-76	Headset, Microphone	3
2590-00-473-6331		C21452	Bracket, Gas Can	3
5995-01-225-0507	CX-13300/VRC	A3014044-7	Cable Assembly, 1A11W95 (16ft.)	1
5895-00-136-7182	M42 MNT	D5-15-5490	Mount, Alarm (f/M42)	2
MK-2312/VRC				
5995-01-219-7024	CG-3856/VRC	A3014032-2	Cable, RF (4 FT)	2
5995-01-219-7023	CG-3856/VRC	A3014032-1	Cable, RF (2 FT)	1
5306-00-225-9089		MS90726-34	Hardware, Hex Cap Screw	4
5995-01-226-5482	CX-13303/VRC	A3014040-5	Cable, Pwr. Daisy Chain (2.5 FT)	1
5975-01-235-1962	MT-6353/VRC	A3014053-1	Mounting Base, PA W/Hardware	1
5995-01-225-1655	CX-13303/VRC	A3014040-6	Cable, PA Power(1.5 FT)	1
5310-00-889-2527		MS45904-72	Hardware, Lock Washer	6
5975-00-111-3208		MS3367-5-9	Hardware, Strap, Tiedown	6
5310-00-081-4219		MS27183-12	Hardware. Flat Washer	2
5310-01-243-9429		A3014064-1	Hardware, Strip Nut	1
5995-01-222-4209	CX-13291/VRC	A3014037-1	Cable, PA Control (3 FT)	1
NBC Equip GFPU				
4240-01-231-6515	M93	E5-19-8892	M93, Filter Unit, Gas Particulate	1
PLGR GPS				
5895-01-375-7528		021-0706-010	Personnel Case, GPS PLGR	1
5975-01-375-1302		986-0645-001	Install Mount, GPS, Vehicle	1
5985-01-375-4660		013-1925-030	Antenna Remote W/ Mount	1
6150-01-375-8662		426-0141-050	Cable Assembly, PLGR Remote Antenna	1
6150-01-375-8661		426-0144-010	Cable Assembly, PLGR External Power	1
5825-01-374-6643	AN/PSN-11	822-0077-002	Receiver, Radio PLGR	1
SATCOM				
5820-01-366-4120	AN/PSC-5	724779-801	Enhanced Man pack UHF Terminal(EMUT)	1
Vehicles				
2320-01-380-8604	M1097A1	8750236	HMMWV, Heavy Duty	1
2320-01-412-0143	M1113		HMMWV, Enhanced	1
2330-01-387-5426	M1102		Trailer, High Mobility (HMT) Chassis	2
6115-01-275-5061	MEP-803A		Generator, 10KW, 50/60 HZ	2
2540-01-316-6624			VEHICLE FITTED COVER (4 MAN)	1
2540-01-316-0892		57K0112	VEHICLE FITTED COVER (2 MAN)	1
		SK-E-PU798SB-006-DJ	Switchbox Assembly	1
		SK-E-PU798SB-001DJB	Cable Assembly, Power (P/O Switch Box	1

SECTION 2. PLANS, GOALS AND STRATEGY

1.5 OPERATIONAL CAPABILITY

The Common Ground Station ORD as summarized below, contains requirements that guide and focus the functional performance and logistics execution for the Joint STARS ground stations.

1.5.1 Operational

The CGS stations receive, process, manipulate, store and display Joint STARS preprocessed radar data, sensor data, and reports from the broadcast intelligence networks, and imagery data from selected UAV systems for display and distribution to commanders, key operational planners, and other decision makers in combat units. The CGS supports ground commanders at echelons at brigade and above with reconnaissance, surveillance, situation development, battlefield management, force protection, target development, and targeting for deep attack by Aviation or Field Artillery units, sensor cross cueing, limited intelligence preparation of the battlefield, and battle damage assessment functions.

During operation, Common Ground Stations provide near-real time targeting and surveillance information concerning enemy forces across the FLOT. When fully manned with a crew of six operators, each CGS is capable of operating 24 hours a day for a thirty-day surge period. Up to 1.5 hours per day may be required for system preventive maintenance and displacement. In a wartime situation, the CGS is scheduled to move at least once each day. In peacetime, the CGS will operate eight hours per day, 365 days per year.

1.5.2 Force Structure

The Common Ground Stations will be organic to Echelons Above Corps (EAC), as well as to Divisions and their maneuver Brigades, Armored Cavalry Regiments, Separate Brigades and Enhanced Readiness Brigades. Figure 2-1 shows the projected distribution of ground stations within the Army Force Structure. This figure shows the number of ground stations within typical ground units. A typical Corps headquarters will have 9 ground stations, while Divisions will have about 7 ground stations dependent upon the numbers and types of subordinate units assigned. Ground Stations will be assigned according to gaining command requirements.

There are two CGS operator positions in each system, requiring a total of six operators, Military Occupational Specialty (MOS) 96H, Common Ground Station Operator/Maintainer. These six operators, operate and provide unit-level mission equipment maintenance for 24-hour, round the clock operations. In addition to the operators, at corps level a Warrant Officer (MOS 35D) and an E-7 (MOS 96H40) are required, while at the heavy division an E-7 (MOS 96H40) is required. Onboard the Air Force airborne platform (E-8), three to five Army personnel is required. A notational aircrew will consist of three Officers; 1 Military Intelligence, 1 Field artillery and 1 Aviation and two Non Commissioned Officers (MOS 96H). Five personnel are required for a Joint STARS E-8 mission when aerial refueling is used to keep the aircraft on station for up to 20 hours.

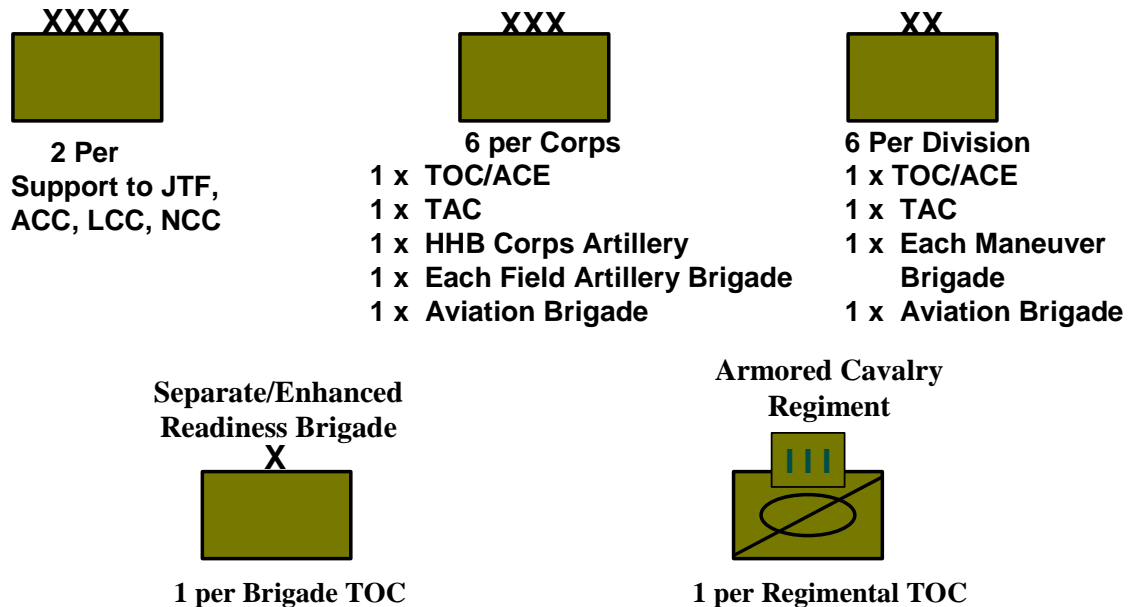


Figure 2-1. Ground Station Distribution

1.5.3 Logistics Requirements

The following logistics requirements are specified in the ground station ORD. The CGSs will be supportable using standard Army logistics. All integrated standard military items (Government Furnished Equipment (GFE)) will be maintained in accordance with the maintenance concept established within its published technical manuals. For unique CGS design items, to include integrated NDI/COTS items, the following procedures are used:

1.5.3.1 Unit Level

Equipment maintenance will be performed at the lowest practical echelon using personnel trained in the appropriate MOSs. At unit level 90% of all faults will be isolated to the Line Replaceable Unit (LRU) (box or circuit card) principally by the operator (MOS 96H Common Ground Station Operator) using Built-In-Test (BIT) or direct observation.

1.5.3.2 Direct Support (DS)

DS contact teams repair or exchange Circuit Card Assemblies (CCA), modules, or LRUs and fault isolate and repair or replace LRUs associated with the 10% of faults not isolated at unit level. Contact teams are comprised of MOS 33W; Electronic Warfare/Intercept Tactical Systems Repairers, and other maintenance specialty personnel as needed. Under normal conditions, 100% of all faults are resolved on-site between the unit and DS levels. An Authorized Stockage List will be provided to the Direct Support Supply Activity(DSSA) during fielding.

1.5.3.3 Contractor Field Service Support (CFSS)

CONUS Field Service Representatives (CFSR) will be located at Ft. Bragg NC, Ft. Hood TX, Motorola, Scottsdale, AZ, Ft. Huachuca AZ , JTF, Melbourne, FL and Robins AFB FL. The number for Motorola CFSR is (408) 675-2749. OCONUS CFSRs will be Korea and Germany. CFSRs are on call 24 hours. The representative will assist the unit/user in determining if the failure is hardware, software or both.

1.5.3.4 Depot

A five-year warranty is established for the CGS. The warranty begins at acceptance test of each CGS and covers all the unique components (developmental and COTS) provided by the CGS contractor. The warranty covers the integration of GFE into the CGS, but does not extend to the GFE itself. The warranty hotline number is 1- 888-898-4187, (408) 441-7570 or DSN 361-6973.

The unit/user will be required to complete a DA-1149 & DA-2407 of the failed part for replacement and ship the failed part directly back to Motorola, AZ. The replacement part will be located at the nearest supply support activity. In addition, manufacturer's warranties on NDI are provided to the Government at no cost. To cover maintenance and supply requirements beyond the scope of the warranty, Contractor Logistics Support (CLS) is planned for depot support of the CGS.

1.5.4 Logistics Database

A system engineering and integrated logistics analysis will be conducted by the contractor to influence CGS design for supportability, to define support requirements and to take maximum advantage of common logistics resources for Joint STARS equipment. The CGS logistics database uses the LGSM Logistics Support Analysis (LSA) and its database (Logistics Support Analysis Record (LSAR) as the initial data. The contractor inputs the results of CGS analyses into the CGS logistics database, which then serves as the basis of all ILS efforts. This database establishes the operations and maintenance requirements for the CGS.

1.6 SYSTEM READINESS OBJECTIVE

1.6.1 Operational Availability Requirement

The CGS System Readiness Objective (SRO) is stated in the ORD in terms of Operational Availability (Ao). The ORD Ao requirement is 75%, however the CGS Specification requires

that the contractor build to an Ao of 80%. The ORD defines the Mission Essential Functions of the CGS as:

- The ability to receive, process, display, and store Joint STARS data.
- The ability to communicate with ASAS or TACFIRE/AFATADS by automated interface or by voice.
- The ability to relocate.

Readiness is a function of reliability, maintainability and administrative activities to compute the percentage of time that an item is fully mission capable. The Ao requirement influences design, support concepts, and relates directly to the CGS mission capability requirement at fielding.

1.6.2 Readiness Reporting

The CGS has been designated as a Pacing item. The Equipment Readiness Code (ERC) A is designated on the user TOE/MTOE and will be reportable under the provisions of DA PAM 738-750. Rating criteria and reporting instructions will be in accordance with chapter 4 of DA PAM 738-750.

1.6.3 Reliability, Availability, Maintainability Parameters

Reliability, Availability Maintainability (RAM) parameters for the CGS as stated in the ORD are presented on Table 2-1, CGS Reliability, Availability, and Maintainability Objectives. Measurements to verify achievement of each of these parameters are briefly discussed below. Reliability and maintainability predictions are projected down to the lowest level repairable item by the contractor's system engineering group and are entered by logistics analysts in the contractor's logistics database. RAM status is briefed at all CGS Logistics IPTs.

1.6.3.1 Reliability

CGS reliability criteria establish a value for the probability that the CGS can perform its essential functions for the duration of a mission or a specified time interval. The Mean Time Between Mission Essential Function Failure (MTBMEFF) value as specified in the ground stations ORD will be evaluated based on the Joint STARS availability/duty cycle of eight (8) hours per day, peacetime. A Mission Essential Function Failure is defined as any incident that results in the loss of Mission Essential Function that cannot be corrected within 15 minutes or less.

Table 2-1. CGS RAM Objectives

•RELIABILITY: Mean Time Between Mission Essential Function Failure	48 Hours
	Mean Time Between Failure (Technical Specification) 158 Hours
• AVAILABILITY: Operational Availability (ORD)	.75
	(SPEC) .80
• MAINTAINABILITY: Mean Time To Repair (MTTR)	
	Unit Level 1 Hour
	DS 3 Hours

1.6.3.2 Availability

CGS availability is the percentage of the time the system is in a mission capable status. The objective stated in the ORD requires an Operational Availability (Ao) of 75%. The measurement of Ao is Achieved Availability (Aa). Once the CGS is fielded, availability will be measured using the following formula:

Mission Capable Hours

Monthly Hours (24 X Days In Month) = Achieved Availability (Aa)

1.6.3.3 Maintainability

Maintainability is a measure of the time to correct a failure. It is influenced by technical complexity, accessibility and the ease with which the CGS can be maintained or repaired. Maintainability objectives stated in the ORD are:

- Failures Corrected At - Unit Level 90%
- Direct Support (DS) 10%
- Mean Time To Repair (MTTR) - Unit Level 1.0 Hours
- DS 3.0 Hours

1.6.4 RAM Data Collection

RAM data will be collected during contractor tests, reliability qualification tests, training, and other CGS operations. All CGS maintenance actions are to be documented and submitted to the Government on Department of the Army (DA) Form 2407 or a comparable substitute approved by the Government. The contractor will continue to utilize his Failure Reporting Analysis and Corrective Action System (FRACAS). For all hardware and/or software failures, the contractor

will prepare and submit hardware Failed Item Analysis Reports and/or Software Problem and Corrective Action Reports. From this data collection effort, the contractor will improve his RAM database developed during the AN/TSQ-179(V)1 efforts. This database will be used to assess and allocate RAM values to sub indentured items of the CGS, to develop and refine RAM predictions and to establish measured RAM values.

1.7 ACQUISITION STRATEGY

The acquisition strategy for CGS provides the basis for an efficient and cost effective CGS system. The strategy was developed at the direction of the Under Secretary of Defense (Acquisition & Technology) USD (A&T) during the FY 93 DAB, and is in full compliance with the Army's and OSDs streamlining "Blueprint for Change." In June 1995, a Joint Army/OSD Integrated Product Team (OIPT) was established to develop an accelerated CGS program strategy and to obtain approval of the Acquisition Strategy Report and Acquisition Program Baseline. In July 1995, a sole source fixed price Low Rate Initial Production (LRIP) contract for eight (8) Light Ground Station Modules (LGSM) was awarded to Motorola Inc, AZ. In FY 96, the CGS baseline configuration was developed and the decision was made to modify the existing LRIP/LGSM contract and deliver the same hardware and software of the subsequent CGS contract award for (16). In FY 97, a second LRIP authority for another (16) CGSs was determined to be necessary in order to maintain the production base until completion of Initial Operational Test & Evaluation (IOT&E). In FY 98, additional LRIP authority was granted for 4 more CGS systems as well as upgrade/replacement of 16 Medium Ground Station Modules (MGSM) utilizing existing MGSM GFE hardware within the CGS system. In Dec 1998, the Defense Acquisition Executive (DAE) approved LRIP authority to procure (12) additional CGSs to preclude a production break while the program addressed concerns identified during IOT&E. An Operational Readiness Demonstration Test (ORDT) was conducted in February 1999 to address IOT&E concerns and the program subsequently scheduled a Milestone III DAB for the summer of 1999. The DAB was held in September 1999 and resulted in a decision to approve the acquisition of 7 additional LRIP units, however the system also was directed to undergo further testing. The CGS participated in the All Service Combat Identification Evaluation Team (ASCIET) exercise in February/March 2000 and the successful results resulted in scheduling another DAB event in August 2000. The August 2000 DAB yielded authority to proceed with Full-Rate Production and procure the remaining 17 units for a total of 96 CGSs. A series of Pre-Planned Product Improvements (P3I) have been identified to insure effective interoperability with the Joint STARS aircraft and other systems and changes driven by obsolescence or technology insertion will be maintained.

1.7.1 Acquisition Streamlining

The CGS is selected and approved by the Secretary of Defense as one of the Army's lead programs for Acquisition Streamlining and Reform. Department of Defense (DOD) and Department of the Army (DA) acquisition streamlining processes radically change the way government acquires equipment. New processes restrict use and reliance on MIL-Specs and Standards, reduce detailed government oversight while at the same time establish Integrated Product Teams (IPT) which foster cooperation with the contractor to accomplish program objectives. Emphasis is turned from detailed "how to" specs and standards to Government performance specifications and reliance on commercial specifications and processes. Implementation of acquisition streamlining concentrates on practices; which reduce cost, reduce

cycle times and enhance value to the Government. The CGS is a front- runner in implementing acquisition streamlining and the resultant practices are reflected in this SS.

1.7.2 Life Cycle Cost

A primary goal of CGS ILS is to develop a fully capable ground station and support system that meets all system requirements at minimum Life Cycle Cost (LCC). Significant actions that will be taken during the CGS production contract include maximizing the use of non-developmental hardware and software and the existing functionality technical data. LCC reduction efforts are being pursued to further reduce acquisition, Operation and Support (O&S) costs.

1.7.2.1 Cost Drivers

A Life Cycle Cost Estimate (LCCE), completed in 1993, was approved by the Cost Analysis Improvement Group (CAIG) as part of the FY93 Defense Acquisition Board (DAB) process. This LCCE addresses each of the ground stations variant's life cycle costs. While there is no single factor driving overall cost, the key factors in each phase of the ground station programs were identified for potential cost containment initiatives. The primary cost driver of ground station's development was the actual development of system hardware and software. In production of the CGS the primary driver will be the recurring cost to manufacture. Training will be the most prominent cost in the fielding process, while military pay will be the predominant cost after fielding.

1.7.2.2 Maintainability

Design for supportability, achieved through improved maintainability and associated MANPRINT characteristics, is emphasized in the CGS production phase. Ease of maintenance and cost reductions, made possible through the application of these disciplines, are gained through ergonomic considerations and standard design practices in equipment layout. These practices result in reduced complexity, ease of access, commonality of tool and part selection and improved man-machine interfaces. The success of CGS maintainability and MANPRINT efforts are reflected in physical and mechanical layout and packaging of the primary system hardware. CGS requirements documents, specifications and the associated contract Statement Of Work (SOW) all emphasize RAM and design factors to reduce the supportability requirements and life cycle costs. The system requirements document establishes a reliability factor of 48 hours MTBMEFF, an operational availability rate of 75% and a Mean Time To Repair (MTTR) at unit level of one hour. To achieve these objectives, emphasis is placed on design features to reduce hard failures. These features include independent functional elements and redundancy of capability. Emphasis on the man-machine interface and RAM criteria reduce the overall system complexity. The CGS specifications and the resultant design stress measures to facilitate maintenance, improve reliability and at the same time reduce complexity and frequency of maintenance actions. For example the CGS Server contains multiple processors which allow the system to reallocate processor loads after a processor fails.

1.7.2.3 Testability

Testability objectives emphasized the requirement that the CGS contain sufficient Built –In- Test capability allows the user to quickly identify, isolate and correct faults. The CGS's BIT runs as power-up BIT, background BIT and as on-demand BIT. BIT provides both system status (functionality) and fault isolation to LRU. Detected faults are indicated to the operator as BIT lights on boxes, audio signals and as on-line icons. Fault isolation procedures are provided on screen as MMI software panels and are described in detail in the Operators and Maintenance Manuals. The CGS specification requires that the system be powered up and BIT be performed within 15 minutes, that BIT be initiated without requiring power down and that reboot be accomplished within five minutes.

1.7.2.4 Integration of Government Furnished Equipment

Use of military standard items, i.e. shelter, trucks, trailers, generators and communications equipment, is included in the CGS design. This extensive use of GFE results in economy of design and improves logistic support over the life cycle.

1.7.2.5 Nuclear, Biological, Chemical Survivability

Contamination Survivability (CS) is to be comparable with protection provided to the supported units. CS survivability will be provided by a positive over-pressure system. Nuclear hardening will be limited to High Altitude EMP and the protection inherent to the shelter. Hardening against electromagnetic effects will equal those of similar equipment supporting Corps operations.

1.7.3 Support Risks

1.7.3.1 Technical Risk.

Supportability assessment risk low. The CGS baseline configuration has been produced and fully tested. Pre Planned Product Improvement (P3I) will also be fully tested and then added to the production line units. Two technical challenges/risks do exist. The first concerns the power, space, and weight constraints within the HMMWV/SICPs shelter configuration and the additional requirements to be placed in these areas in the process to incorporate the initial as well as future P3I hardware modifications. To reduce this risk, key power and weight consumers, particularly, the CTT and Ground Data Terminal (GDT) are targeted for downsizing effort. The second risk to the program is that as radar technology advances, the SCDL may not possess the high data rate throughput necessary to transmit all the radar data and products. Should this occur, the Ground Commanders would not have access to the full intelligence and targeting prowess of the CGS system. Data compression algorithms and other throughput expansion alternatives are presently being evaluated to maintain the critical air to ground link. The SCDL Improvement Program (SIP) initiated in FY97 will posture the SCDL for possible additional data rate and performance enhancing modifications. A possible replacement of the current SCDL may emerge from the Common Data Link (CDL) family of high-speed data lines. Current CDL products are point to point and do not satisfy the broadcast

requirement of the CGS system. The Tactical Common Data Link (TCDL), a CDL derivative will provide broadcast mode. TC DL products are also identified as the Data Link of choice for other CGS airborne sensors (UAV), ACS, etc). The fact that the different TC DL manufacturers products are not common and will not interoperate with each other, increases the risk that multiple "Common" Data Links may be required to receive multiple sensor product. This will exasperate the space and weight challenge already placed on the CGS.

1.7.3.2 Risk Drivers

Preliminary analyses have identified the following medium and low support risks related to CGS supportability:

AVAILABILITY Supportability Risk Assessment: Low

Increased use of commercial items coupled with inclusion of added capabilities to the CGS, such as SID and full duplex CTT make the system more complex than the MGSM or LGSM. This complexity expands the system structure and therefore exposes the CGS to secondary failures. Increased complexity and reliance on commercial literature to support integrated COTS equipment can increase the CGS failure rate.

RELIABILITY Supportability Risk Assessment: Low

Use of NDI/COTS components in the CGS reduces the rugged characteristics of the LGSM/MGSM and exposes components to more frequent failure. To adapt for these less rugged commercial characteristics, the CGS contractor is providing shock mounts within the racks. Use of isolation at the rack level should provide adequate protection to maintain the reliability for the CGS NDI/COTS components. However, development of proper shock/vibration isolation for NDI/COTS components is considered low risk.

BUILT-IN TEST Supportability Risk Assessment: Low

Use of NDI/COTS equipment on the CGS also restricts fault isolation of some electronics components to the box level. Lack of BIT to the card/module level will require that operators replace a box rather than card(s) adding significant repair parts costs at unit level. This may require added off equipment fault isolation and repair tasks at the DS level or force box evacuation to depot level. The requirement for 100% fault detection and 90% fault isolation at Unit level requires extensive use of highly accurate BIT. Design of effective BIT capability to the card/box level is considered low risk.

1.7.4 Elements of Support Acquisition

The CGS production builds on the proven CGS V1 functionality. Emphasis during the CGS production contract is placed on the use of selected standard Government Furnished Equipment (GFE) and Non-Development Items (NDI). Use and support of GFE and NDI is integrated into the CGS design and technical documentation making maximum use of existing data and support procedures. The following paragraphs describe CGS procedures used to facilitate support acquisition.

1.7.4.1 Spares Acquisition Integrated with Production

Spares Acquisition Integrated with Production (SAIP) is the primary mechanism for procurement of CGS initial spares. Experience from the CGS V1 and subsequent analyses to be conducted during the CGS contract will identify Authorized Stockage List (ASL) Line Replaceable Units (LRUs) and other support items required for initial fielding and sustainment. Items identified through this process are candidates for SAIP procurement in the CGS production contract.

1.7.4.2 Materiel Fielding

During the CGS production contract, the Government with assistance from the prime contractor developed a Materiel Fielding Plan (MFP). MFPs are coordinated with the Gaining Commands and are specifically tailored for each fielding. Fielding will be accomplished using Total Package Fielding (TPF) procedures established in AR 700-142, “Instructions for Materiel Release, Fielding and Transfer”.

1.7.5 Transportability

A Transportability Report for the CGS will be prepared by the contractor for submission to the Military Traffic Management Command - Transportation Evaluation Agency (MTMC-TEA) for CGS Transportability Approval. Any special transportability requirements for the CGS or its major components will be described and detailed in the appropriate CGS technical manual.

1.7.6 Other Data

The intent during CGS Full-Rate Production is to pursue an ongoing P3I effort to provide an enhanced highly automated capability to receive, process, manipulate, store, and display near real time intelligence data that satisfy the Commander’s operational requirements. P3I allows incorporation of enhanced capabilities, additional sensors, new technology and advanced operator functions. P3I efforts that will be incorporated include:

Group 3 - FY00 award

- JTT Integration
- INFOSEC
- Replacement of KY-68
- IDM upgrade

Group 4 - FY01 award

- RTIP Integration
- Computer Resource Upgrade

1.8 SUPPORTABILITY ANALYSIS STRATEGY

Logistics products in support of the CGS baseline contract were developed based on performance based specifications. The Request For Proposal (RFP) provided guidelines utilizing reliability, availability and maintainability as the basis for procurement. Figure 2-3 lists those Logistics Products delivered in support of the CGS program. The CGS is currently in the Production phase. The CGS program plan will be to manufacture and test an initial baseline configuration and evolve the CGS to its full functional capability through a series of Pre-Planned Product Improvements (P3I).

1.8.1 Early Fielding Analysis.

This task, performed by the Government during the production phase, assesses the impact of CGS fieldings on existing systems, identifies the sources of manpower and personnel and the logistic support resources required for fielding. Documentation prepared by the Government under this task includes:

- Basis of Issue Plans (BOIP)
- Qualitative and Quantitative Personnel Requirements (QQPRI)
- Total Package Fielding (TPF) Documentation
- Interchange Requests

1.8.2 Post Production Support Analysis.

This task identifies life cycle support requirements prior to closing production lines. This task will be performed during the production contract.

1.8.3 Supportability Assessment.

This task is performed jointly by the Government and the prime contractor to assess the achievement of supportability goals and requirements. During CGS production the supportability issues and data developed under this task will be input to the Test and Evaluation Master Plan (TEMP).

1.8.4 Logistic Database

The CGS V2 will use the CGS V1 data as the basis of the contractor's logistics database. New and modified data is added to the preliminary CGS V1 data to fulfill CGS V2 program needs.

1.8.4.1 CGS Logistics Database Structure

The CGS component-level structure is provided at Section 1, Figure 1-3. Each component within the structure is assigned a unique Logistic Control Number that identifies the item's location within the CGS. Through the data development process this structure will be expanded during the production contract to represent the CGS down to the lowest level repairable item within the configuration.

1.8.4.2 Output Products

The contractor's logistics database serves as the single source of ILS data for the CGS program. The database will generate the Maintenance Allocation Chart (MAC) and will be used as source data for technical publications, training, and provisioning and repair parts manuals.

1.8.5 Government - Contractor Interrelationships

The CGS logistics effort is subjected to Government overview through the TIM and IPT process. At the initial logistics IPT, start-of-work meetings for Provisioning and Technical Manuals were conducted. The Government provided initial documentation and guidance and reviewed output product requirements. The maintenance concept development, and logistics analysis and documentation process were also subjected to review and comment. .

1.9 SUPPORTABILITY TEST AND EVALUATION CONCEPTS

Supportability Test and Evaluation (T&E) for the CGS V2 is an extension of the CGS V1 logistics process and is conducted to verify, demonstrate and evaluate support concepts, analyses and predictions against the prototype support system. During the CGS contract the T&E process will assess the CGS design and the system supportability. Contractor testing will be followed by a user oriented operational assessment/ test that assess the CGSs operational suitability and logistics support concepts in an operational environment. Government technical documentation review and verification of logistics technical products will also serve to test support concepts and procedures against this design.

1.9.1 Supportability Data

The ILS processes described within this SS develop supportability procedures and result in technical documentation for T&E. This data will be based on predictions, allocations, and logistics modeling, backed by initial measurements and operational experience. Data will progress during development from estimates, to paper documentation, to actual data recorded during CGS operations.

1.9.2 Define Supportability Issues

The basic ground station support concepts and procedures were developed during the CGS V1 development contracts. Supportability issues related to these concepts are identified and published in the ground stations Test and Evaluation Master Plan (TEMP). Early in the CGS production contract, the ILS Manager will review CGS support procedures to identify any supportability issues unique to the CGS

1.9.3 Methods and Procedures

During CGS production, T&E efforts range from paper analyses and predictions to actual measured tests and on-equipment verification. Specific methods and procedures to evaluate supportability issues will be developed in the test plan(s) developed for the specific test or demonstration. Testing will be comprised of contractor technical tests and verifications followed by an operational assessment/test. Operational assessment/test assesses operational effectiveness and supportability of the CGS in a soldiers' environment.

1.9.3.1 Technical Test

The contractor in accordance with the established Validation Plan has completed technical testing for the baseline CGS system. Stress testing was completed in Jan 99. The Initial Operational Test & Evaluation was conducted in Mar-Apr 98 due to certain deficiencies, additional testing was required and a follow on Operational Reliability Demonstration test was required and completed in Feb 99. A system assessment is scheduled for March 2001. Much of the CGS validation was accomplished through analysis, demonstration or inspection.

1.10 ILS ELEMENT PLANS

ILS applies a thorough, integrated and iterative process to each of the 12 ILS elements. Each ILS element is a distinct functional area, but to confirm supportability, each element is fused by the ILS Manager into a total support package that considers the other ILS elements, hardware/software design, MANPRINT, systems engineering, and test and evaluation requirements.

1.10.1 Design Influence

Many aspects of CGS design are fixed by decisions and requirements established in the ORD and related program documentation. Extensive use of GFE items, such as trucks, radios, and NDI limit areas where design influence can be applied. Conversely, technology insertion afforded by the CGS design offers areas of growth, commonality, and other support initiatives that are most challenging. Major efforts to influence design for supportability occurred in the MGSM and LGSM programs. This effort continues during CGS production. For example, the support shelter has been eliminated permitting the crew to ride in the HMMWV rather than inside the closed up support shelter. The RWS replaces the RDS and now positions directly in front of the mission vehicle passenger for better viewing and operation. Also, the mast and trailer layout are redesigned using less complex, easier to use and maintain equipment.

1.10.1.1 Safety

Safety, a principal concern in CGS design and operational and support procedures is a topic in all design reviews, system testing, TIMs, and Logistics IPTs. Safety emphasis, applied during design, eliminates or reduces hazards. Safety and human factors are an integral part of the CGS design process. During production the contractor establishes and maintains a Safety/Human Factors tracking system to document problems and associated analyses. A CGS Safety Assessment was performed and results reported to the Government. In accordance with the CGS system specification, safety considerations include:

- Lightning Protection
- Electrical Safety
- Mechanical Safety
- System Grounding Procedures
- Chemical Safety
- Microwave, RF and X-radiation Safety
- Radioactive Restriction

During CGS V1 production, safety assessments identify and track hazards to develop measures to eliminate or control safety hazards. Effectiveness in providing a safe operational environment is provided in the CGS Safety Assessment Report (SAR). Annex D is the CGS Safety Release for training dated October 2000.

1.10.1.2 Health Hazards

During production Health Hazards Assessments (HHA) are conducted to negate or eliminate health risks. The CGS V2 HHA will be based on the CGS V1 HHA and will address all design changes incorporated into this baseline. Presently there are no uncontrollable health hazards in any CGS development item. The contractor continues efforts to minimize health hazards and monitors the design to verify that no additional health hazards are designed into the CGS. A Health Hazard Assessment will be conducted by the Army Materiel Command (AMC) Surgeon General.

An Environmental Impact Analysis, conducted by CECOM System Engineering Division, in accordance with the National Environmental Policy Act (NEPA) will be performed for the CGS. Based on this analysis, an Environmental Impact Statement will be prepared. CGS will not have significant individual or cumulative effects on the environment during its life cycle.

1.10.1.3 Human Factors Engineering

During CGS V1 development, emphasis was placed on human factors engineering and specifically on the man-machine interface. This effort resulted in increased efficiency, reduced learning time and corrected design problems to simplify operator workload.

1.10.1.4 Test Equipment

The CGS design minimizes need for support items and emphasizes use of Built-In Test (BIT) to fault isolate and test. All field level test equipment will be standard issue items available through and supported by normal logistics support procedures. At unit level no test equipment beyond the BIT capability will be required to test or fault isolate CGS electronics. At DS all CGS unique electronic items will be maintained using BIT, a multimeter (AN/PSM-45) and a Radio Test Set (AN/URM-213A). Depot level tests use established contractor test and troubleshooting procedures.

1.10.1.5 Design For Growth

Major components within the CGS, such as the server, provide reserve processing and storage capability that will permit added capability in the future. In addition, sensor and radio connectors in numerous instances are not dedicated so that a variety of new capabilities may be easily connected without redesign.

1.10.1.6 Transportability

For discussion of transportability, see paragraph 2.6.10.

1.10.1.7 Experience With Other Systems

Lessons learned from previous ground stations and similar systems influence CGS design for supportability. Experience with these systems lead to significant improvement in CGS design and supportability, to include extensive use of BIT, ease of access for maintenance and elimination of tools and test equipment.

1.10.1.8 Hazardous Materials

Hazardous materials are not used in CGS items.

1.10.1.9 Reliability, Availability and Maintainability

As reported at the CDR, the CGS is designed to meet or exceed the Reliability, Availability and Maintainability (RAM) requirements (see paragraph 2.2.3.) established in the requirements documents and the applicable CGS specifications.

1.10.1.10 Training

Embedded training, simplicity of operation and maintenance reduce skill level requirements for Common Ground Stations. These same characteristics permit operators and maintainers to handle additional capabilities without increased training times.

- Unit Level. A 14 week Unit-Level CGS Operator/Maintainer Training Course for MOS 96H trains Instructors and Key Personnel (IKP). Program Of Instruction (POI)

Lesson Plans and other course materials developed by the contractor has been provided to the Intelligence School at Ft. Huachuca, AZ.

- DS Level. A 3 week DS Maintenance Training Course, part of a 35 week Maintenance Training Course for MOS 33W, trains Instructors and Key Personnel (IKP), POI, Lesson Plans and other contractor developed training materials has been Provided to the Intelligence School at Ft. Huachuca, AZ.

1.10.1.11 Readiness Objective

High reliability, ease of maintenance, definitive BIT and on equipment restoration influence a high operational availability for the CGS.

1.10.1.12 Support Resources

Use of definitive BIT, design to use tools from specific tool boxes, and emphasis on weight reduction limit the types and numbers of tools and support items required for CGS support.

1.10.1.13 Life Cycle Costs

PM CGS is actively investigating ways to reduce Operation & Sustainment (O&S) Costs for the Common Ground Station (CGS). The PM and the prime contractor, Motorola, are currently involved in an Integrated Product Team (IPT) to develop a methodology to reduce O&S costs in areas of repair, supply, software, civilian labor and overall CGS O&S costs (costs per system). Some of the other areas of cost reduction initiatives we are investigating include; remote diagnostics, backward compatibility and Contractor Field Service Representatives (CFSR). Future studies in the areas of O&S cost reductions include; Government vs. contractor supply, Contractor Logistics Support for the "entire" CGS, to include GFE, and the ability to perform remote diagnostics from contractors' facility. It is the PMs intention to provide the most efficient and cost effective Weapon System available and at the same time increase system Operational Availability (AO).

1.10.1.14 Design Interface Documentation

The contractor develops and controls CGS technical documentation below the system specification. After CGS final acceptance, the contractor may change the configuration, provided that updates to any affected logistics data (including technical manuals and training materials) are submitted to the government at no additional cost. In cases where the configuration changes desired by the contractor impact the system specification, the contractor is required to notify the government by letter, including all areas affected. The contractor has established configuration review, also called Configuration Control Board (CCB), meetings as a basis to review and evaluated design changes. Master Change Orders (MCOs) are utilized by the contractor to initiate and evaluate changes to technical data. These MCOs are reviewed by the contractor's CCB members for approval. As a member of the CCB, the contractor's ILS manager evaluates MCOs and if there are impacts to logistics, the ILS manager addresses the impacts at Integrated Product Team(IPT) meetings.

1.10.2 Maintenance Plan

This portion of the SS establishes the CGS Maintenance Plan. The purpose of this plan is to establish the CGS maintenance concept using the requirements established in the ORD (see paragraph 2.1 and Table 2-2. This Maintenance Plan provides the framework for an effective and economical system maintenance concept. Within the following paragraphs maintenance criteria, concepts, procedures, analyses, documentation and anticipated results are described and procedures to transform this data into maintenance procedures are detailed.

Table 2-2. CGS Maintenance Support Factors

FACTOR	CRITERIA
Crew Size	Two operators / Eight Hour Shift Six Operators for 24 Hour Operations Operator/Maintainer - MOS 96H -
Usage Factor	Peacetime: Eight Hours/Day/365 Days = 2920 HRS/YR Surge: 24 Hour/Day for 30 Days Emplaced/displaced within 30 minutes
Fault Isolation	Fault isolation through BIT and loss of function to the box or card level
Maintenance	All faults will be corrected on Equipment: 90% by Operator/Maintainer 10% by DS Contact Team
Reliability	48 Hours Mean Time Between Mission Essential Function Failure(MTBMEFF).
Operational Availability	ORD - 75%, Spec - 80%
Maintainability	Mean Time to Repair (MTTR): Unit - ORD - 1 Hour, Spec 30 Minutes DS - ORD - 3 Hours, Spec - 1 Hour

1.10.2.1 Maintenance Criteria

This plan incorporates maintenance criteria and guidelines established by the Combat Developer in the ground stations ORD, the system performance specification and the CGS maintenance concept. Factors driving the maintenance support concepts for the CGS are summarized on Table 2-4

1.10.2.2 Maintenance Concept

The CGS Maintenance Concept, see Table 2-3, is structured on a three level basis to ensure the CGS meets the requirements of the ORD. CGS maintenance maximizes on-equipment repair to rapidly restore system operations. All Government Furnished Equipment (GFE) installed in or

used with the CGS will be maintained in accordance with the established maintenance concept and is not specifically covered by this document. The CGS operator is the unit level maintainer. The CGS operators detect all faults using BIT or manual fault isolation procedures authorized in the MAC (Annex F). The CGS operator removes and replaces faulty LRUs. The CGS operators are assisted by unit level repairers for fault isolation and maintenance of GFE. DS contact teams perform fault isolation and repair beyond the capability of the CGS operator. The DS maintainer is responsible for breaking ambiguity groups and replacing major components when BIT within a box does not identify the problem. The Maintenance Concept objective is to rectify all faults and restore CGS operations in the field 100% of the time. Faulty items removed from the CGS are evacuated to the contractor Depot for further repair.

2.6.2.2.1. Unit Maintenance.

Unit maintenance tasks are performed on-equipment by the operator/maintainer (MOS 96H). Unit- level maintenance resolves 90% of detected faults. Unit level tasks consists of both preventive and corrective maintenance:

- Preventive Maintenance Checks and Services (PMCS) are tasks to improve or prolong performance or to detect potential failures. Service tasks include replacement of life limited components such as batteries and bulbs, maintaining cleanliness and the lubrication of mechanical devices.
- Corrective Maintenance at unit level is performed on-equipment and includes fault detection, repair by replacement and verification of operation after repair. Corrective maintenance tasks are derived by the contractor from failure mode analyses. Using BIT and observation the operator/maintainer detects all system faults and fault isolates and corrects 90% of the detected faults by replacement of a Line Replaceable Unit (LRU). The remaining 10% of detected faults will be corrected on-equipment by Direct Support level personnel.

1.10.2.2.1 Direct Support (DS) Maintenance.

DS maintenance provides both on-equipment and limited off-equipment maintenance. Integrated GFE items are maintained by support MOSs identified in the QQPRI, in accordance with procedures established within GFE published technical manuals. Unique equipment of the CGS is maintained by DS personnel as follows:

Maintenance Level	Repair Location	Who Does It	Types of Tasks		How
Unit (96H)	On Equipment (ON CGS)	Operator	Preventive	<ul style="list-style-type: none"> - Inspect - Clean - Time Change - Items (Batteries) - Lubricate 	In Accordance with Technical Manual (TM) PMCS
			Corrective	<ul style="list-style-type: none"> - Fault Isolate - Remove/Replace - Verify/Test 	BIT/ Operator Observation In Accordance with MAC and TMs
Direct Support (33W)	On Equipment	Direct Support repairers	Corrective	<ul style="list-style-type: none"> - Fault Isolate - Remove/Replace - Verify/Retest - Minor Repairs 	Diagnostic Procedures (BIT/Manual) Support Equipment In Accordance with MAC and TMs
Depot	Off Equipment	Contractor	Corrective	<p>Component Level</p> <ul style="list-style-type: none"> - Fault Isolate - LRU/SRU Repair - Overhaul/Rebuild - HW/SW Mods 	In Accordance With (IAW) Best Commercial Practices

Table 2-3. CGS Maintenance Concept

- On-equipment DS Maintenance for unique CGS items is performed to fault isolate the remaining 10% of detected faults that could not be resolved at unit level. DS contact teams comprised of Intercept Tactical Systems Repairers (MOS 33W) use BIT and manual diagnostic routines to resolve ambiguity groups and perform other technical tasks such as soldering and complex disassembly of components. DS support equipment is limited to those items required to restore the CGS to operational status. Restoring the CGS to an operational status is accomplished by removal and replacement of Line Replaceable Units (LRU) of the CGS.
- Off-Equipment DS maintenance is limited to bench type repairs to specific isolated faults that could not be resolved on-equipment considering space requirements or operational time constraints.

- Maintenance of Army standard items (GFE) at DS is performed in accordance with the CGS MAC and the GFE technical manuals. The 33W is responsible for the interface of GFE with the CGS. Further fault isolation and maintenance is performed by the MOSs identified in the Basis of Issue Plan Feeder Data and the Qualitative and Quantitative Personnel Requirements Information (QQPRI) (Annex J of this SS).

1.10.2.2.2 Depot Maintenance.

The contractor will provide Life Cycle Contractor Logistics Support (LCCLS) for the CGS. Contractor depot level repair capability will be provided to support the unique hardware and software of the CGS, to include NDI hardware and software. Warranty repair of the CGS will be performed by the contractor for five years after the acceptance test of each CGS, see Annex L. During the CGS production contract depot level tasks will be identified in the MAC and the LSAR. Depot tasks will be performed by civilian technicians and will include repair of recoverable LRUs, application of upgrades and modifications, and overhaul and retrofit in the out years. Depot repair of GFE items will be performed in accordance with the established support procedures developed for the GFE item.

1.10.2.2.3 Support Equipment.

No unique support items are anticipated for the maintenance or operation of the CGS. For repair and operation of integrated GFE, support equipment, as identified in the GFE technical publications, will be used.

1.10.2.3 Maintenance Procedures

The following procedures will be used to develop the CGS maintenance concept to satisfy the support requirements of the ORD.

1.10.2.3.1 Functional Requirements Analysis.

This analysis assesses and records CGS operations and support functions. The results of this analysis are recorded in the contractor's logistic database and when combined with the functional task analyses, failure modes and reliability analyses, document the entire scope of operations and support tasks to be performed for the CGS.

1.10.2.3.2 Task Analysis.

This task analysis details procedures and identifies support resources required for CGS operational and maintenance tasks. The results of this task are recorded on the contractor's logistics database.

1.10.2.4 Maintenance Documentation

The contractor's logistics database is the database from which all logistics technical products are developed. Contractor products include:

- Training Materials
- Maintenance Allocation Chart
- Narrative manuals
- Provisioning Documentation
- Repair Parts and Special Tools Lists (RPSTL)
- Support Equipment Lists

The contractor's logistics database and each of the above technical documents have been subjected to a rigorous review process including contractor validation and Government verification. This logistics technical documentation and derivative technical products have establish the baseline CGS logistic support structure to be fielded.

1.10.2.5 CGS Warranty

A five year warranty is established for the CGS. The warranty begins at acceptance test of each CGS and covers all unique components (Development Items and COTS) provided by the CGS contractor. The warranty covers the integration of GFE into the CGS, but not the GFE items themselves. In addition, any existing manufacturer's warranties on COTS/NDI are provided to the government at no cost. A Technical Bulletin defining the specific scope of the warranty and , warranty procedures will be developed and fielded by the government.

1.10.3 Manpower and Personnel

The CGS uses existing Military Occupational Specialties (MOS) for operations and maintenance. The logistics task analysis is the primary means to identify manpower and personnel skill requirements. In addition, the contractor's logistics database develops the primary data for skill training analyses, defines required support skills, and documents man-hour requirements to support CGS manpower requirements.

1.10.3.1 Operator Personnel

Army spaces for CGS will be partially accommodated through space trade-offs from Military Intelligence (MI) and Field Artillery (FA) equipments. Additional required spaces will be determined by the Department of the Army (DA) based upon Total Army Analysis and Decision (TAAD) processes. Six operators, MOS 96H; Common Ground Station Operator, are required for each CGS. One Officer and two Enlisted personnel are required aboard the Joint Stars E-8A airborne platform. If in-flight refueling is accomplished during the missions, up to two additional personnel are required.

1.10.3.2 Maintenance Personnel

CGS system and component level repairs will be accomplished by the MOSs at the levels indicated on Table 2-4.

Table 2-4. CGS Maintenance Repairers

MOS	SPECIALTY TITLE	LEVEL
96H	Common Ground Station Operator/ Maintainer	Unit
33W	Electronic Warfare/Intelligence System Repairer	DS

1.10.3.3 Manpower and Personnel Objectives

Manpower and Personnel Objectives for the CGS development are to:

- Influence design to optimize soldier performance. This optimization is achieved by considering performance and reliability issues related to Human Factors Engineering (HFE), manpower requirements, personnel skills, training, system safety and health hazards, to make a functional allocation of tasks amongst people, hardware and software.
- Considering tactical requirements and support constraints, ensure CGS conforms to capabilities and limitations of the fully equipped soldiers as they operate, maintain, supply and deploy the CGS in an operational environment.
- Assist the trainer to determine requirements and to design, develop and conduct the requisite Army training.
- Improve control of the CGS life cycle costs by ensuring consideration of personnel resources and training costs.
- Ensure that the CGS design, operational concepts, technical manuals, and training materials are compatible with the limits for operator and maintenance personnel as defined in the trainers target audience description.
- Provide data for development of technical manuals and training materials.

1.10.3.4 Manpower and Personnel Documentation

Quantities and types of personnel required to operate and maintain the CGS will be documented by the Government in the final DA approved Quantitative and Qualitative Personnel Requirements Information (QQPRI). The QQPRI is based upon data developed within the contractor's logistics database supplemented with data related to integrated GFE. The QQPRI is coordinated with TRADOC and submitted to DA for approval.

1.10.4 Supply Support

Supply support encompasses those management actions, procedures and techniques required to acquire, catalog, receive, transfer, issue, and dispose of principal and secondary items. It includes provisioning for initial support as well as for replenishment during the initial fielding period. Within the following paragraphs the CGS Supply Support Plan is documented. The objective of this plan is to:

- Describe supply support concepts.
- Establish supply support procedures and responsibilities.
- Develop supply support data for the acquisition schedule.
- Position and field supply support items.

The CGS ILS Manager implements this plan and integrates provisioning and supply support efforts with all other elements of ILS and system development. The CECOM Provisioner assists the ILS Manager in developing provisioning practices and procedures and is responsible for overseeing and verifying contractor provisioning efforts.

Supply support efforts are concentrated on the development of the maintenance concept and retail level spares identification and requirements determination. At initial fielding, CGSs retail supply support will be totally managed by the Government and supported by a contractor operated supply depot. For the first five years each CGS will be covered by a manufacturer's warranty. This warranty will provide replacement components from the contractor's production lines and affording the Government time to develop depot spares stockage requirements considering actual failure data.

1.10.4.1 Supply Support Concepts

Supply support concepts are based on the support limitations, capabilities, and requirements established in the ORD.

1.10.4.1.1 Spares Analyses.

Experience from previous ground stations combined with CGS design projected at the CDR indicates that the CGS will be technically complex with highly reliable functional electronics components. In addition, current distribution and fielding data indicate that CGS assets will be

deployed in relatively low densities. Given these factors, coupled with an operational availability (Ao) of 75%, it is highly unlikely that demand based sparing will provide the range and depth of items necessary to maintain the required availability. The impact on sparing would be that nothing will be stocked at retail level and very little will be stocked at wholesale level. As a result, a spares requirement would entail procurement against requirements as they occur, with an average of 18 - 20 months for supply accommodation. Supposing that the CGS fails once a month and every other failure is hardware related, requiring a spare, the achieved availability would be about 8%. To provide spares to achieve the Ao requirement, past failure experience and mission criticality techniques, coupled with the CGS maintenance concept will be used to develop initial spares requirements.

1.10.4.1.2 Initial Spares.

Using actual usage/failure experience from fielded CGS V1's, predicted CGS failure rates and essentiality of repair, an initial repair parts list is established for the CGS to provide an Authorized Stockage List (ASL) for items at the Direct Support level. Depot stocks at the wholesale level will be positioned at depot . (located at Motorola, Scottsdale, AZ)

1.10.4.1.3 Spares Procurement.

Budgeting and funding for CGS spares procurement is based on ground station supply support concepts, field experience and CGS supporting spares analyses. Spares requirements for initial fieldings and replenishment are currently included in the Five Year Defense Program (FYDP). Spares to support wholesale requirements will be funded using Army Working Capital Fund (AWCF) moneys. AWCF is a revolving fund programmed through the CECOM Item Manager.

1.10.4.2 Supply Support Procedures

Requisitioning and budgeting for spares will be accomplished by using units following standard procedures established in AR 710-2, Inventory Management Supply Policy Below Wholesale Level. Units will be advised of budgeting requirements through the materiel fielding process. Current plans are to stock spares and repair parts at:

- Retail Level

Unit	Expendables/Durables	Defined in TM -10
DS Supply Support Activity (DSSA)	ASL	Spares/ Repair Parts
- Wholesale Level

Depot	Depot Stocks	Spares/Repair Parts
-------	--------------	---------------------

1.10.4.2.1 Provisioning Record.

Contractor developed supply characteristics for spares and repair parts are recorded on the contractors logistics database. At the "start of work" Provisioning Guidance Conference the Government specified data field requirements for provisioning data. Each required data element and the procedures for selecting codes for documentation in the logistics database were

discussed and agreed upon. Data requirements are tailored to generate a Short Form Provisioning Parts List (SFPPL) in LSA-036 format.

1.10.4.2.2 Provisioning.

The contractor selects, identifies and recommends spares and repair parts for provisioning. The scope of the contractor's effort is in the CGS contract Statement Of Work (SOW). The following provisioning documentation is specified in the CGS contract:

- Short Form Provisioning Parts List (SFPPL LSA 036 Format)
- Provisioning and Pre-procurement Screening
- Engineering Data for Provisioning (EDFP)
- Design Change Notices (DCN)

1.10.4.2.3 Guidance and Review

A Provisioning Guidance Conference, coordinated with TIM #3 and its associated Logistic IPT, was held at the start of the CGS contract. At this conference the scope of provisioning efforts and interface requirements with the Government were reviewed with the contractor. At this conference the Government provided CGS Provisioning Contract Control Number (G96EVR) and the Useable On Code/Provisioning Control Code (LEP) for the AN/TSQ-179(V)1. The AN/TSQ-179(V2) received a PCC of 26M.

1.10.4.2.4 Verification.

Verification of supply support documentation is based on the verification of:

- The SFPPL.
- Repair Parts and Special Tools Lists (-20P/-30P RPSTLs).
- Authorized Stockage Lists (ASL).

1.10.5 Support Equipment and TMDE

1.10.5.1 Support Equipment

All support equipment required for operation and support of the CGS has been documented by the contractor in the provisioning record and fielded in accordance with Total Package Fielding (TPF) procedures. Requirements for expendable/durable supplies, common tools, tool kits, ground handling equipment and other support equipment has been identified in the CGS Materiel Fielding Plans. Requirements for support equipment were identified and documented through the submission of Basis of Issue Plan Feeder Data (BOIPFD) to TRADOC. In addition, DA Forms 5661-R, Interchange Requirements, are prepared and submitted to alert item managers of integrated GFE of CGS production and fielding requirements on a yearly basis.

1.10.5.2 Test Measurement and Diagnostic Equipment

CGS development minimizes requirements for field level Test Measurement and Diagnostic Equipment (TMDE) beyond system BIT. A RF Power Test Set, AN/URM-213 and a AN/PSM-45 multimeter have identified for use at the DS level. GFE items used with the CGS will be maintained using the TMDE specified in the applicable technical publications.

1.10.6 Training and Training Devices

1.10.6.1 Training

CGS training is designed to ensure that user personnel are qualified to operate and maintain the system and all support and to carry out assigned responsibilities. CGS training will include instruction ranging from conventional teacher/classroom type instruction to supervise on-the-job and unit team training. Responsibilities for training are listed on Table 2-7.

Table 2-5. Training Responsibilities

TRAINING	RESPONSIBILITY
Initial Transfer of Knowledge	Contractor
Institutional Training	USAIC&FH
New Equipment Training	CECOM
Unit Training and Sustainment	Unit Commanders

Table 2-6. CGS Training Products

- Operator/Unit Level Trainer
- Operator/Unit Level Trainer Operator/Maintenance Manual
- Operator/Unit Level Training Materials
- Direct Support Trainer
- Direct Support Trainer Operator/Maintenance Manual
- Direct Support Training Materials

1.10.6.1.1 Institutional Training.

Institutional training to support CGS fieldings is being conducted by the US Army Intelligence Center and Fort Huachuca. Contractor training materials were developed and delivered to the school, as reflected on Table 2-8 and are used by the school to maintain institutional training courses.

1.10.6.1.2 New Equipment Training.

The New Equipment Training Plan (NETP) for the CGS is included as Annex G to this SS. CECOM is responsible for developing and providing New Equipment training to support CGS fieldings. Institutional Training is provided for all CGS operators/maintainers. CECOM on-site New Equipment Training will be utilized as a refresher training to update the skills of MOS 96H and 33W personnel previously schoolhouse trained.

1.10.6.1.3 Unit Training and Sustainment.

Sustainment training will be conducted by Unit Commanders using a Government-prepared Reproducible Training Package that includes Program Of Instruction Guides, Lesson plans and Student handouts and if necessary additional training may be requested by the Unit Commander and coordinated with CECOM NET or Motorola's field service representative.

1.10.6.2 Training Devices

The CGS, RWS and the CGS training devices all share common software. This common software provides an embedded training capability with each CGS and RWS. This capability will facilitate on-the-job and proficiency training in the field.

1.10.7 Technical Data

Technical data includes engineering drawings, task analysis data, RAM data, reports, equipment publications, logistics database, tabular data, computer software documentation and test results from testing, operation and maintenance of the CGS. Technical data communicates CGS design and requirements for development of the CGS system supportability. Figure 2-2. displays the CGS Technical Data requirements and products from the CGS contract.

1.10.7.1 Technical Publications

Each CGS technical manual has been reviewed and verified through Validation Testing.

Table 2-7. CGS Equipment Publications

Operators Manual Volume No. 1	TM 11-5865-348-10-1
Operators Manual Volume No. 2 Part 1	TM 11-5865-348-10-1-2
Operators Manual Volume No. 2 Part 2	TM 11-5865-348-10-2-2
Unit Maintenance Manual	TM 11-5865-348-20-1
Unit Maintenance Manual	TM 11-5865-348-20-2
Unit Maintenance RPSTL	TM 11-5865-348-20P
Direct Support Maintenance RPSTL	TM 11-5865-348-30P
Commercial -Off-the-Shelf (COTS) Manual	TB 11-5865-348-13-2

1.10.8 Computer Resources Support

Computer resources support encompasses integrated planning, facilities, operational hardware, software, software documentation and the related manpower and personnel needed to develop, operate and support the CGS. Computer resources include embedded and stand-alone systems. Software and computer resources required for the CGS will be based on some software developed under the CGS V1 contract. All computer resources support throughout the life cycle will be performed under the control and surveillance of PM CGS.

1.10.8.1 Government Support

1.10.8.1.1 Software Trouble Reporting.

All field-level computer software/firmware problems and requests for changes will be coordinated with the contractor's regional Field Service Representative (FSR). The FSR will assist the using units in preparation of the QDRs and/ or EIRs and coordinate with both PM Joint STARS and/or Motorola. A copy of the QDR and EIR will be provided to:

PM CGS/JTT
ATTN: SFAE-IEW&S-JS (Shedenhelm)
Fort Monmouth, NJ 07703-5304
Tel: DSN987-5936 Comm (732) 427-5936
Fax: DSN987-5120 Comm (732) 427-5120

Motorola Inc., SSTG
ATTN: JointSTARS Depot J8758
8201 E. McDowell Road
Scottsdale, AZ 85252

1.10.8.1.2 Trouble Reporting.

Software trouble reporting procedures for the user will be described in the CGS Materiel Fielding Plan.

1.10.8.1.3 Training Updates.

Any required training associated with revised or new versions of software will be provided by the software support agency. The type of training will be determined by the scope and extent of the software changes. Some changes may require only simple textual changes to the software or system technical manuals. Other changes may require that a software support agency representative conduct on-site training. All training will clearly identify any new functions and the specific problems corrected by the new software versions.

1.10.8.2 Interim Contractor Support

Interim Contractor Support (ICS) is not anticipated for support of the CGS software.

1.10.8.3 Software Management

The CECOM Software Engineering Center (SEC) is designated as resource manager for all computer software employed in the Common Ground Stations.

1.10.8.4 Software Technical Assistance

The prime contractor will provide technical assistance for support of the CGS throughout P&D.

1.10.8.5 Development Software Support Environment (DSSE)

The DSSE developed by the prime contractor will be resident at the software support agency to design, integrate, test, document, and maintain ground station software.

1.10.9 Packaging, Handling and Storage

There are no special Packaging, Handling and Storage (PHS) requirements for the CGS.

1.10.10 Transportation and Transportability

The CGS external physical configuration is similar to other HMMWV systems with LMS shelters. A primary objective of the CGS design effort is to provide a readily transportable ground station that can move with tactical forces on all modes of transportation

1.10.10.1 Transportability Assessment

The ORD requires that the ground stations be transportable by all modes of transportation. The CGS can be transported by Air (aircraft or helicopter), sea, rail, semi trailer, or by self-deployment. The different modes of transportation offer varying degrees of efficiency and suitability. The choice of transportation mode depends to a large extent on the specific mission requirement and the prevailing environmental conditions. Transportation Constraints Summary is provided in Table 2-8

	Air Cargo Mode				Sea Mode					
	C-130H	C-141 B	C-5A	C-17	Cargo Ship	Container	Amphibious	Rail	Land	Helicopter
Loading Time	4 Men 60 Min	4 Men 30 Min	4 Men 30 Min	4 Men 30 Min	8 Men 6.0 Hrs	N/A	8 Men 30 Min	8 Men 6.0 Hrs	N/A	4 Men 60 Min
Shelter Removal from Truck	No	No	No	No	Some- times	N/A	No	Some- times	No	No
Distance To Be Transported	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited Sea	N/A	Limited Sea	Limited Land	Limited	Limited
Surface To Be Transported Land/Sea	Land/Sea	Land/Sea	Land/Sea	Land/Sea	Sea	Sea	Sea	Land	Land	Land/Sea
Distance Transported Non- stop	2900 Miles	4800 Miles	3000 Miles	3000 Miles	Unlimited	N/A	Tactical	Coast/ Coast	200 miles	30 Miles
Time Factor For Delivery To Final Destination	Fast	Fast	Fast	Fast	Slow	N/A	Slow	Slow	N/A	Fast
Number of Trips/Flights/Vessels Required	2	1	1	1	1	N/A	Min 1 Max 2	1	1	Min 3
Shock Hazards	Low	Low	Low	Low	Medium	N/A	Low	Hi	Medium	Hi h
Vibration Hazards	Low	Low	Low	Low	Low	N/A	Low	Medium	Medium	High
Safety of Equipment/Personnel	Excellent	Excellent	Excellent	Excellent	Good	N/A	Good	Low	Good	Good
Tactical Delivery is Possible	Yes	Yes	Yes	Yes	No	N/A	Yes	No	Yes	Yes
Environmental Conditions For Equipment	Excellent	Excellent	Excellent	Excellent	Moisture Corrosion	N/A	Moisture Corrosion	Good	Good	Good '
Weather Conditions Impact	Seldom	Seldom	Seldom	Seldom	Seldom	N/A	High	Low	High	High

Table 2-8. Transportation Constraints Summary

1.10.10.2 Transportability Report

The Transportability Report was delivered by the contractor and approved by the Government in Apr 98. It has been submitted to the Military Traffic management Command-Transportation Evaluation Agency (MTMC-TEA) for Transportability Approval. The Transportability Certification is still pending the approval of the HMT materiel release.

1.10.11 Facilities

There are no unique facilities requirements associated with the CGS development.

1.10.12 Standardization and Interoperability

Standardization and Interoperability (S&I) objectives for the prototype Common Ground Stations are to enhance the total combat capability of the North Atlantic Treaty Organization (NATO) and other allies through the use of common doctrine, procedures and support systems. NATO has identified a requirement for an Alliance Ground Surveillance System (AGS) for peace-time surveillance and response to crisis situations. The US is cooperating with the definition and development of the NATO capability through a prototyping effort at the SHAPE Technical Center. The US objective is the acquisition of a NATO AGS capability that maximizes interoperability, technology flow-back, and technology reuse.

1.11 SUPPORT TRANSITION PLANNING

1.11.1 Support at Fielding

CGS will be fielded in accordance with Total Package Fielding (TPF) procedures specified in AR 700-142; Materiel Release, Fielding, and Transfer and DA Pamphlet 700-142; Instructions for Materiel Release, Fielding, and Transfer. Using procedures specified in these documents, organic supply and maintenance support for each gaining unit will be tailored considering the number of CGSs to be deployed and needs and existing capabilities of the gaining unit. Using TPF, the CGS(s) and required support package will be fielded in accordance with the Materiel Fielding Plan (MFP) developed by the Fielding Command and the Mission Support Plan (MSP) developed by the Gaining Command. Initial repair parts and spares will be provided at Unit and DS levels at fielding. All replenishment or requirements for other spares and repair parts will be submitted as funded requisitions by using units. MFPs provide funding guidance for the gaining commands.

1.11.1.1 Government Furnished Equipment

All standard items (GFE) integrated into the CGS, as well as all associated military standard parts and support equipment, will be supported at fielding, through depot level, in accordance with the maintenance and supply support procedures established in the GFE item technical publications.

1.11.1.2 Stock Numbered Items

At fielding, all CGS repairables and field level piece parts will be stock numbered (NSN). The CGS and its unique components will be supported for the first five years under contractor warranty. Warranty provisions and procedures are provided in this SS at Annex K. For items not warranted and after expiration of the warranty all supply support will be provided through normal military supply channels.

1.11.1.3 Contractor Support

CGSs will be supported by the contractor under warranty for five years after acceptance test. In addition, depot-level Life Cycle Contractor Logistic Support for supply and maintenance will be provided for the CGS. Depot level technical assistance will be provided from the contractor depot for all fielded CGSs.

1.11.2 Transition to CECOM

CECOM is designated as the Commodity Manager (B16) for the CGS. Transition of support responsibilities to CECOM will be accomplished in accordance with AR 700-127 and AMC Regulation 700-34.

1.11.3 Type Classification

The CGS was classified as a Full Rate Initial Production (FRP) system as of a Milestone III decision, August 2000, in accordance with AR 70-61. Prior to hand off of the CGS to gaining units materiel release will be obtained in accordance with AR 700-127, AR 700-142 and AMC Regulation 700-34.

1.12 SUPPORT RESOURCES FUNDING

Support resource funds required for CGS initial provisioning are part of the Army Master Program/Program Objective Memorandum (AMP/POM) budget reviews. These requirements are based upon experience with previous versions of ground stations and criticality analyses.

Funding authorizations for less than the requirements stated and justified in the AMP/POM submissions will impact the CGS equipment delivery schedule, planned fieldings and the development of a support capability.

1.13 POST FIELDING ASSESSMENTS

Post fielding assessments for the CGS will be conducted in accordance with AR 700-127. The scope, procedures and responsibilities of the CGS post fielding assessments will be developed during Production & Deployment. It is anticipated that any assessments conducted will focus on software support procedures and the adequacy of initial spares.

1.13.1 Army Equipment Maintenance

DA forms and procedures used for equipment maintenance will be as prescribed in DA PAM 738-750.

1.13.2 Equipment Improvement Recommendations (EIR)/Product Quality Deficiency Reports (PQDR)

Army personnel are requested to submit EIR to recommend equipment improvements. A PQDR is submitted to document design deficiencies for correction. As prescribed in DA PAM 738-750, the EIR/PQDR is forwarded to:

Commander, U.S. Army Communications-Electronics Command
ATTN: AMSEL-PA-MA-D
Fort Monmouth, NJ 07703-5000

1.13.3 Transportation Discrepancy Reports (TRD)

When a discrepancy in shipment is discovered, a Standard Form 361 TRD is required to be completed as prescribed in AR-55-38

1.13.4 Report of Discrepancy

When packaging or handling discrepancies are found a Standard Form (SF) 364 is completed as prescribed in AR 735-11-2 and forwarded to the service/agency as directed.

1.14 POST PRODUCTION SUPPORT

Post-production support requirements will be addressed during production planning process. A Post Production Support Plan will be developed if post-production support issues or requirements are identified.

SECTION 3. ILS MILESTONES

3.1 CGS MILESTONES

The CGS program is progressing under the Pre-Planned Product Improvement acquisition cycle. All functionality's previously identified under CGS P3I Group I Contract program have been combined under the CGS P3I Group II Contract and will be delivered under the following milestone delivery schedule identified in Table 3-1.

Table 3-1 Delivery Schedule

(Milestone data being updated)

3.2 CGS FIELDING SCHEDULE

Table 3-2 is the Fielding Schedule of the CGS. The first fielding of three CGSs occurred in 3QFY97 and 1QFY98 to the U.S. Army Intelligence School & Center under a Training Materiel Release. The CGS fielding schedule will recommence upon final approval from DA and Materiel Release has been approved.

Table 3-2. Fielding Schedule

MONTH	UNIT/EVENT		HQ	CMD	LOCATION	CGS V1	CGS P3i	JSWS	V1 SWAP
PRIOR	111 MI Bde		USAIC&FH	TRADOC	Ft Hua	3			
FY 99									
Jun-99	319 MI BN	525 MI BDE	18 ABC	FORSCOM	Ft Bragg	2			
	313 MI BN	82d Abn	18 ABC	FORSCOM	Ft Bragg	3			
Jul-99	502 MI BN	201 MI Bde	I Corps	FORSCOM	Ft Lewis	2			
	303 MI BN	504 MI BDE	III Corps	FORSCOM	Ft Hood	1			
	104 MI BN	4 ID(M)	III Corps	FORSCOM	Ft Hood	2			
Aug-99	302 MI BN	205 MI Bde	V Corps	USAREUR	Germany	2			
	297 MI BN	513 MI Bde		INSCOM	Ft Gordon	2			
Sep-99	532 MI BN	501 MI BDE		INSCOM	ROK	2			
	102 MI BN		2ID(M)	EUSA	ROK	1			
FY99 TOTAL						17			
FY 00									
May-00		MEF I & II		USMC		2			
Jun-00	319 MI BN	525 MI BDE	18 ABC	FORSCOM	Ft Bragg	3			
Jun-00	313 MI BN	82d Abn	18 ABC	FORSCOM	Ft Bragg	2			
Jun-00	102 MI BN		2ID(M)	EUSA	ROK	1			
Jun-00	HHT	6 CBAC	III Corps	EUSA	ROK	1			
Jul-00	311 MI BN	101 ABN	18 ABC	FORSCOM	Ft Campbell	5			
Jul-00	103 MI BN	3ID(M)	18 ABC	FORSCOM	Ft Stewart	2			
Jun-00	104 MI BN	4 ID(M)	III Corps	FORSCOM	Ft Hood		2		
Aug-00	104 MI BN	4 ID(M)	III Corps	FORSCOM	Ft Carson		1		
Aug-00	125 MI BN	25ID(L)	I Corps	USARPAC	Hawaii	4			
Sep-00	303 MI BN	504 MI BDE	III Corps	FORSCOM	Ft Hood	1			
Sep-00	312 MI BN	1 Cav Div	III Corps	FORSCOM	Ft Hood	4			
Sep-00	302 MI BN	205 MI Bde	V Corps	USAEUR	Germany			2	
FY00 TOTAL						25	3	2	
FY 01									

MONTH	UNIT/EVENT		HQ	CMD	LOCATION	CGS V1	CGS P3i	JSWS	V1 SWAP
Oct-00	209 MI BN	1 IBCT	2 ID	FORSCOM	Ft Lewis	1			
Oct-00	104 MI BN	4 ID(M)	III Corps	FORSCOM	Ft Hood		3		2
Oct-00	Swift Lab			ESC	Hanscom			1	
Oct-00	32 AOG			USAFE	Ramstein, GE			1	
Oct-00	IOC/AOC			USAFE	Ramstein, GE			1	
Oct-00	4 ASOG			USAFE	Sullivan Bar			1	
Oct-00	31 FW			USAFE	Aviano, IT			1	
Oct-00	INTEG LAB			USMC	Quantico			1	
Oct-00	532 MI BN	501 MI BDE		INSCOM	ROK		2	3	2
Oct-00	102 MI BN		2 ID	EUSA	ROK		1		1
Nov-00				PM CGS	Ft Monmouth			1	
Nov-00				C2/TIG	Nellis AFB			1	
Nov-00		MEF III		USMC	Okinawa			1	
Feb-01	111 MI Bde		USAIC&FH	TRADOC	FT Huachuca		2		3 (3)
Mar-01	111 MI Bde		USAIC&FH	TRADOC	FT Huachuca		1		
Jun-01		MEF I & II & III		USMC			3		2
Jun-01	319 MI BN	18ABC Elem	18ABC	FORSCOM	Ft Bragg		5		5
Jun-01	313 MI BN	82d Abn	18 ABC	FORSCOM	Ft Bragg		5		5
Jul-01	311 MI BN	101 ABN	18 ABC	FORSCOM	Ft Campbell		5		5
Jul-01	66 MI CO	3 ACR	III Corps	FORSCOM	Ft Carson		1		
Aug-01	209 MI BN	1IBCT	I Corps	FORSCOM	Ft Lewis		1		1
Aug-01		2 IBCT/25 ID	I Corps	FORSCOM	Ft Lewis		1		
Aug-01	125 MI BN	25 ID	I Corps	USARPAC	Hawaii		1		
FY01 TOTAL						1	31	12	26
FY 02									
Oct-01	312 MI BN	1 Cav Div	III Corps	FORSCOM	Ft Hood		6		4
Oct-01	303 MI BN	504 MI BDE	III Corps	FORSCOM	Ft Hood		2		2
Nov-01	103 MI BN	3ID(M)	18 ABC	FORSCOM	Ft Stewart		6		2

MONTH	UNIT/EVENT		HQ	CMD	LOCATION	CGS V1	CGS P3i	JSWS	V1 SWAP
Jan-02	HHT	6 CBAC	III Corps	EUSA	ROK		1		1
Jan-02	102 MI BN	2ID(M)		EUSA	ROK		3		1
Mar-02	302 MI BN	205 MI Bde	V Corps	USAREUR	Germany		2		2
Mar-02	502 MI BN	201 MI Bde	I Corps	FORSCOM	Ft Lewis		2		2
Apr-02	297 MI BN	513 MI Bde		INSCOM	Ft Gordon		2		2
Apr-02	125 MI BN	25ID(L)	I Corps	USARPAC	Hawaii		4		4
May-02	HHB FA	III CORPS FA	III Corps	FORSCOM	Ft Sill		1		
May-02	HHB FA	17 FA BDE	III Corps	FORSCOM	Ft Sill		1		
May-02	HHB FA	75 FA BDE	III Corps	FORSCOM	Ft Sill		1		
May-02	HHB FA	212 FA BDE	III Corps	FORSCOM	Ft Sill		1		
May-02	HHB FA	214 FA BDE	III Corps	FORSCOM	Ft Sill		1		
Jun-02	572 MI (AK)	172 IN BDE		USARPAC	Alaska		1		
Jun-02	110 MI BN	10 ID(L)	18 ABC	FORSCOM	Ft Drum		4		
Jul-02	502 MI CO	2d ACR	18 ABC	FORSCOM	Ft Polk		1		
Aug-02	101 MI BN	1 ID(M)	V Corps	USAREUR	Germany		6		
Sep-02	501 MI BN	1 AD	V Corps	USAREUR	Germany		6		
FY02 TOTAL							51		20
FY 03									
Oct-02	Oth ROK Units				ROK		3		
Nov-02	HHB FA	V CORPS FA	V Corps	USAREUR	Germany		1		
Nov-02	41 FA BDE	V CORPS	V Corps	USAREUR	Germany		1		
Nov-02	12 Avn Bde	V CORPS	V Corps	USAREUR	Germany		1		
RESERVE COMPONENT FIELDING BEGINS									
Feb-03	278 MI CO	278 ACR	TN NG	FORSCOM	Nashville		1		
Mar-03	255 MI CO	155 AR BDE	MS NG	FORSCOM	Tupelo		1		
Apr-03	281 MI CO	81 IN(M) BDE	WA NG	FORSCOM	Kent		1		
May-03	241 MI CO	41 IN BDE	OR NG	FORSCOM	Portland		1		
Jun-03	227 MI CO	27 IN BDE	NY NG	FORSCOM	Manhattan		1		

MONTH	UNIT/EVENT		HQ	CMD	LOCATION	CGS V1	CGS P3i	JSWS	V1 SWAP
Aug-03	248 MI CO	48 IN(M) BDE	GA NG	FORSCOM	Macon		1		
Sep-03	256 MI CO	256 IN(M) BDE	LA NG	FORSCOM	Baton Rouge		1		
FY03 TOTAL							13		
FY 04									
Oct-03	218 MI CO	18 IN(M) BDE	SC NG	FORSCOM	Columbia		1		
Nov-03	216 MI CO	116 AR BDE	ID NG	FORSCOM	Boise		1		
Feb-04	276 MI CO	76 IN BDE	IN NG	FORSCOM	Indianapolis		1		
Mar-04	245 MI CO	45 IN BDE	OK NG	FORSCOM	Ok City		1		
Apr-04	230 MI CO	30 IN(M) BDE	NC NG	FORSCOM	Washington		1		
May-04	239 MI CO	39 IN BDE	AR NG	FORSCOM	Cp Robnson		1		
Jun-04	229 MI CO	29 IN BDE	HI NG	FORSCOM	Honolulu		1		
Sep-04	253 MI CO	53 IN BDE	FL NG	FORSCOM	Tampa		1		
FY04 TOTAL							8		
TOTAL CGS						46	103		46 & 3 LOANS
TOTAL JSWS								14	

3.3 COORDINATION

This SS is provided to all participants involved in ILS and the decision process for the CGS. Participants involved in the ILS process are identified in the Points Of Contact List, Annex C. Each ILS participant should review this document and provide written comment or concurrence within 60 days of receipt. Comments should be prepared and submitted on DA Form 2028, Recommended Changes to Publications and Blank Forms. All correspondence related to CGS issues or this SS should be submitted to:

Project Manager, Common Ground Station (CGS)
ATTN: SFAE-IEW&S-JS (McCARTHY)
Fort Monmouth, New Jersey 07703-5304

APPENDIX A Glossary
TERMS & ACRONYMS

A

Additional Authorized List (AAL)
Advanced Field Artillery Tactical Data System (AFATADS)
Air Data Terminal (ADT)
Air Reconnaissance Low (ARL)
All Source Analysis System (ASAS)
Alliance Ground Surveillance System (AGS)
Army Master Program/Program Objective Memorandum (AMP/POM)
Army Materiel Command (AMC)
Army Materiel System Analysis Activity (AMSAA)
Army Modernization Info Memo (AMIM)
Army System Acquisition Review Council (ASARC)
Army Tactical Missile System (ATACMS)
Army Working Capital Fund (AWCF) - formerly DBOF
Artillery Tactical Operations Centers (ATOC).
Authorized Stockage List (ASL)
Automated Data Processing (ADP)
Automated Requirements Computation System Initial Provisioning (ARCSIP)

B

Baseline Cost Estimate (BCE)
Basic Issue Items (BII)
Basis of Issue Plan (BOIP)
Basis of Issue Plan Feeder Data (BOIPFD)
Built-In Test (BIT)

C

Chemical Agent Monitor (CAM)
Chemical, Biological, Radiological (CBR)
Circuit Card Assembly (CCA)
COEI List (COEIL)
Combat Developer (CBTDEV)
Command, Control, Communications and Intelligence (C3I)
Commander's Tactical Terminal (CTT)
Commercial Off The Shelf (COTS)
Common Ground Station (CGS)
Common Table Of Allowances (CTA).
Communications - Electronics Command (CECOM)
Communications Security (COMSEC)
Communications-Intelligence (COMINT)
Components Of the End Item (COEI)

Computer Software Configuration Items (CSCI)
Configuration Control Board (CCB)
Contamination Survivability (CS)
Contract Line Item number (CLIN)
Contractor And Government Entity (CAGE) code
Contractor Furnished Equipment (CFE)
Contractor Logistics Support (CLS)
Corps Tactical Operations Centers (CTOC)
Cost Analysis Improvement Group (CAIG)
Critical Design Review (CDR)
Critical operational Issue (COI)

D

Defense Acquisition Board (DAB)
Defense Budget Operations Fund (DBOF)
Design Change Notices (DCN)
Development Software Support Environment (DSSE)
Digital Non-secure Voice Terminal (DNVT)
Digital Secure Voice Terminal (DSVT)
Direct Support (DS)
Direct Support/General Support (DS/GS)
Direct Support Supply Activity (DSSA)
Division Artillery (DIVARTY)
Division Tactical Operations Centers (DTOC)

E

Echelons Above Corps (EAC)
Electronic Warfare-Intelligence (IEW)
Electronics-Intelligence (ELINT)
Electronics System Support Center (ESSC)
Electrostatic Sensitive Device (ESD)
Engineering and Manufacturing Development (EMD)
Engineering Change Order (ECO)
Engineering Data for Provisioning (EDFP)
Enhanced Moving Target Indicator (EMTI)
Environmental Control Unit (ECU)

F

Failure Reporting Analysis and Corrective Action System (FRACAS)
Fault Isolation Relay Assemblies (FIRA)
Fiber Distributed Data Interface (FDDI)
Fire Control Radar (FCR)
First Unit Equipped Date (FUED)
Fixed Target Indicator (FTI)
Forward Line of Own Troops (FLOT)

Forward Supply Activity (FSA)
Full Rate Production (FRP)
Full Scale Development (FSD)

G

Gas Particulate Filtration Unit (GPFU)
General Support (GS)
Global Positioning System (GPS)
Government Furnished Equipment (GFE)
Government Furnished Information (GFI)
Government Off The Shelf (GOTS)
Ground Data Terminal (GDT)
Ground Station Module (GSM)

H

Hardware (HW)
High Mobility Multi-purpose Wheeled Vehicle (HMMWV)
Human Factors Engineering (HFE)

I

Identification Number (IN)
Imagery-Intelligence (IMINT)
Initial Operational Test and Evaluation (IOT&E)
In-Process Review (IPR)
Instructor and Key Personnel Training (IKP)
Integrated Data Modem (IDM)
Integrated Logistic Support (ILS)
Integrated Logistic Support Plan (ILSP).
Integrated Product Team (IPT)
Integrated Support Plan (ISP)
Intelligence Broadcast Networks (IBN)
Interim Ground Station Modules (IGSM)

J

Joint Services Operational Requirement (JSOR)
Joint STARS Program Office (JPO)
Joint Surveillance Target Attack Radar System (Joint STARS)
Joint System Operational Concept (JSOC)
Joint System Operational Requirement (JSOR)
Joint Tactical Information Distribution System (JTIDS)
Joint Tactical Terminal (JTT)

K

Kilowatt (KW)

L

LGSM Low Rate Initial Production (LLRIP)
Life Cycle Contractor Logistics Support (LCCLS)

Life Cycle Cost (LCC)
Light Ground Station Module (LGSM)
Lightweight Multipurpose Shelter (LMS)
Limited Procurement-Urgent (LPU)
Line Item Number (LIN)
Line Replaceable Units (LRUs)
Local Area Network (LAN).
Logistic Support Analysis (LSA)
Logistics and Readiness Center (LRC)
Low Rate Initial Production (LRIP)

M

Maintenance Allocation Chart (MAC)
Manpower and Personnel Integration (MANPRINT)
Materiel Developer (MATDEV)
Materiel Fielding Agreement (MFA)
Materiel Fielding Plan (MFP)
Materiel Requirements List (MRL)
Materiel Transfer Plan (MTP)
Maximum-Time-To-Repair (MTTR)
Mean Time Between Mission Essential Function Failure (MTBEFF)
Medium Ground Station Module (MGSM)
Memorandum of Agreement (MOA)
Milestone Decision (MD)
Military Occupational Specialty (MOS)
Mission Support Plan (MSP)
Mobil Electric Power (MEP)
Mobile Subscriber Equipment (MSE)
Moving Target Indicator-(MTI)

N

National Environmental Policy Act (NEPA)
National Stock Number (NSN)
New Equipment Training Plan (NETP)
Non-Developmental Items (NDI)

O

Operation Joint Endeavor (OJE)
Operational Availability (Ao)
Operational Field Demonstration (OFD)
Operational Requirements Document (ORD).
Operational Test and Evaluation (OT&E)
Operations & Control (O&C)
Operations & Support (O&S)

P

Part Number (PN)
Physical Qualification Test (PQT)
Position Locating ground Radio (PLGR)
Point Of Contact (POC)
Preplanned Product Improvement (P3I)
Prescribed Load Lists (PLL)
Preventive Maintenance Checks and Services (PMCS)
Prime Mission Equipment (PME)
Production and Deployment (P&D)
Program Executive Office - Intelligence and Electronic Warfare (PEO-IEW)
Program Management Decision (PMD)
Program Manager, Project Manager (PM)
Program Of Instruction (POI)
Project Manager (PM)

Q

Qualitative and Quantitative Personnel Requirements Information (QQPRI)

R

Reliability, Availability Maintainability (RAM)
Reliability Qualification Test (RQT)
Remote Display System (RDS)
Remote Workstation (RWS)
Repair Parts and Special Tools List (RPSTL)

S

Safety Assessment Report (SAR)
Satellite Communications (SATCOM)
Secondary Image Dissemination (SID)
Sector Search (SS)
Short Form Provisioning Parts List (SFPPL)
Side Looking Airborne Radar (SLAR)
Simulation, Training and Instrumentation Command (STRICOM)
Single Channel Ground and Airborne Radio System (SINCGARS)
Software (SW)
Software Engineering Directorate (SED)
Software Qualification Test (SQT)
Spares Acquisition Integrated with Production (SAIP)
Standard Study Number (SSN)
Standoff Target Acquisition System (SOTAS)
Statement Of Work (SOW).
Surveillance and Control Data Link (SCDL)
Synthetic Aperture Radar (SAR)
System Readiness Objective (SRO)
System Support Package (SSP)
Systems, Space and Technology Group (SSTG)

Table of Distribution and Allowances (TDA)
 Tables of Organization and Equipment (TOE)
 Tactical and Related Applications (TRAP)
 Tactical Communications Interface Module (TCIM)
 Tactical Data Dissemination System (TDDS)
 Tactical Data Information Exchange Service - Broadcast (TADIXS-B)
 Tactical Fire Direction System (TACFIRE)
 Tactical Information Broadcast Services (TIBS)
 Tactical Receive Equipment and Related Applications (TRAP)
 Tactical Reconnaissance Intelligence Exchange System (TRIXS)
 Technical Interface Meetings (TIM)
 Technical Tests (TT)
 Test and Evaluation (T&E)
 Test and Evaluation Master Plan (TEMP)
 Test Integration Working Group (TIWG)
 Test Measurement and Diagnostic Equipment (TMDE)
 Total Army Analysis and Decision (TAAD)
 Total Package Fielding (TPF)
 TRADOC System Manager (TSM)
 Training and Doctrine Command (TRADOC)
 TRAP Data Dissemination System (TDDS)

U

Ultra High Frequency (UHF)
 Unmanned Aerial Vehicle (UAV)
 US Army Intelligence Center and Fort Huachuca (USAIC&FH)
 User Test (UT)

V

Validation and Verification (V&V)
 Very High Frequency (VHF)
 Video Cassette Recorder (VCR)
 Volts Direct Current (VDC)

W, X, Y, Z

Wide Area Surveillance (WAS)

APPENDIX B Points of Contact

JOINT STARS POINTS OF CONTACT LIST

A

ACUESTA, TONY
U.S. ARMY STRICOM
ATTN: AMSTI-LR
12350 RESEARCH PARKWAY
ORLANDO, FA 32826
DSN: 970-3703 COML: (407)384-3703
FUNCTION: TRAINING DEVICES

ARMSTRONG ANDRE
CECOM: AMSEL-LC-IEW-C-JS
FT MONMOUTH, NJ 07703-5304
DSN: 987-5921 COML: (732)427-5921
FUNCTION: PRODUCTION ENGINEERING

B

BAILEY, BRIAN
MOTOROLA, INC., SSTG
8201 E. MCDOWELL ROAD
SCOTTSDALE, AZ 85252
COML (408)441-7486
FUNCTION: MAINTENANCE ENGINEERING

BARNWELL, HELEN
CECOM: AMSEL-LC-IEW-C-JS
FT MONMOUTH, NJ 07703-5304
DSN992-9866 COML: (732)532-9866
FUNCTION: CATALOGER/PROVISIONER

BARRON, WILLIAM H.
PM JOINTSTARS/JTT: SFAE-IEW&S-JS
FT. MONMOUTH, NJ 07703-5403
DSN: 987-5167 COML: (732)427-5167
FUNCTION: CGS P31 PROJECT LEADER

BOND, STEVE, COL
TRADOC SYSTEM MANAGER
ATSI-TSM-JS
FT. HUACHUCA, AZ 85613-7000
DSN : 821-5201/5301 COML: (602)533-5201/5301
FUNCTION: TSM

C

CHAN, MARVIN
CECOM C2SID
FT. MONMOUTH, NJ 07703-5304
DSN: 987-4260 COML: 427-4260
FUNCTION: TRANSPORTATION

CLEVELAND, ROB
CECOM SED: SFAE-IEW&S-JS
FT. MONMOUTH, NJ 07703-5403
DSN: 987-4777 COML: (732)427-4777
FUNCTION: SOFTWARE ENGINEER

CLOUD, JOHN
READINESS - NATIONS CONTRACT
SFAE-IEW&S-JS
FT MONMOUTH, NJ 07703-5403
DSN: 987-4780 COML: (732)427-4780

CONTRERAS, MIKE
MOTOROLA INC. SSTG
P. O. BOX 1417 8201 E. McDOWELL RD
SCOTTSDALE, AZ 85252
COML: (602)675-1153
FUNCTION: DEPOT COORDINATOR

CROES, DON
ACQUISITION CENTER
AMSEL-ACCC-A-CC(RAP)
FT. MONMOUTH, N.J 07703-5403
DSN: 992-3428 COML: (732) 532-3428
FUNCTION: PROCUREMENT SPECIALIST

D

D'ANTONIO, DON
READINESS DIRECTORATE
FT. MONMOUTH, NJ 07703-5403
DSN: 992-3795 COML: (732)532-3795
FUNCTION: FIELDING SUPPORT

DEINES, DENNIS
MOTOROLA, INC.,SSTG
8201 E. MCDOWELL ROAD
SCOTTSDALE, AZ 85252
COML: (602)441-6251
FUNCTION: FIELDING SUPPORT

DENTROUX, FRANK
PM JOINT STARS/JTT (SYTEX
FT MONMOUTH, NJ 07703-5000
DSN: 987-4448 COML (732) 427-4448
FUNCTION: SUPPORT CONTRACTOR

DIETZ, DAVID
8201E MCDOWELL ROAD
SCOTTSDALE, AZ 85252
COML: (480)441-6857
FUNCTION: PRODUCTION PROJECT MGR

DORAN, TERRY
READINESS DIRECTORATE
FT. MONMOUTH, NJ 07703-5403
DSN: 992-2915 COML: (732)532-2915
FUNCTION: FIELDING SUPPORT

DONALDSON, BEVERLY
CECOM LRC: AMSEL-LC-IEW-C-JS
FT. MONMOUTH, N.J. 07703-5304
DSN: 9929871
FUNCTION: LOGISTIC SUPPORT

DUARTE, THEODORE
MOTOROLA, INC.,SSTG
8201 E. MCDOWELL ROAD
SCOTTSDALE, AZ 85252
COML: (602)441-0736
FUNCTION: LOGISTICS

E

EVANS, SANDRA
PM JOINTSTARS/JTT: SFAE-IEW&S-JS-FM
FT. MONMOUTH, NJ. 07703-5304
DSN: 987-5563 COML: (732)427-5563
FUNCTION: CH, BUSINESS MANAGEMENT

F

FRIEND, CHRIS
TRADOC SYSTEM MANAGER
ATSI-TSM-JS
FT HUACHUCA, AZ 85613-7000
DSN: 879-8939 COML: (520)533-8939

G

GEBELE, BILL
PM JOINTSTARS/JTT: SFAE-IEW&S-JS
FT MONMOUTH, NJ 07703-5304 .
DSN: 987-4059 COML: (732)427-4059
FUNCTION: SYSTEMS ENGINEER

GLENN, CLINT
MOTOROLA INC
8201E MCDOWELL ROAD
SCOTTSDALE, AZ 85252
FUNCTION: TECH PUBS LEAD WRITER

HANRAHAN, JAY
CECOM: AMSEL-SF-SEC
FT. MONMOUTH, NJ 07703-5304
DSN : 992-0084 COML (732)532-0084
FUNCTION: SAFETY ENGINEER

H

HOHANSHELT, DON
MOTOROLA INC
8201E MCDOWELL ROAD
SCOTTSDALE AZ 85252
COML: (408)441-5109
FUNCTION: INTERFACE ENGINEER

J

JOHNSON, STEVE
PM JOINT STARTS/JTT: SFAE-IEW&S-JS-EL
FT MONMOUTH, NJ 07703-5304
DSN: 987-5001 COML: (732)427-5001
FUNCTION: SYSTEM ENGINEER/TRAINING

JOYCE, GENE
CECOM READINESS
FT. MONMOUTH, NJ 07703-5304
DSN: 992-3864 COML: (732)427-3864
FUNCTION: MATERIEL FIELDING DOCUMENTATION

K

KRAUS, KEN
PM JOINT STARTS/JTT: SFAE-IEW&S-JS-EL
FT MONMOUTH, NJ 07703-5304
DSN: 987-4301 COML: (732)427-4301
FUNCTION: CHIEF, ENGINEER

L

LECHTENBERG, TOM
MOTOROLA, INC. SSTG
8201 E. MCDOWELL ROAD
SCOTTSDALE, AZ 85252
COML: (408)441-7242
FUNCTION: FIELD SUPPORT PROGRAM MANAGER

LEE, MIN
PM JOINT STARTS/JTT: SFAE-IEW&S-JS-EL
FT MONMOUTH, NJ 07703-5304
DSN: 987-5171 COML: (732)427-5171
FUNCTION: CLS DEPOT SUPPORT

LEWIS, JOE
CECOM LRC: AMSEL-LC-IEW-C-JS
FT MONMOUTH, NJ 07703-5304
DSN: 987-5490 COML: (732)427-5490
FUNCTION: PROVISIONING

LIVERO, GARY
PM JOINT STARTS/JTT: SFAE-IEW&S-JS-EL
FT MONMOUTH, NJ 07703-5304
DSN: 987-4441 COML: (732)427-4441
FUNCTION: MAINTENANCE ENGINEER

M

MCCARTHY, CAROLINE
PM CGS/JTT SFAE-IEWS-CGS
FT MONMOUTH, NJ 07703-5304
DSN: 987-4438 COML (732)427-4438
FUNCTION:

MARR, LTC PAUL
PM JOINT STARS/JTT: JPO
HANSCOMB AFB, MA 01730-5000
DSN: 478 COML (617) 271
FUNCTION: LIAISON

MARSH, SSGJOSEPH
NEW EQUIPMENT TRAINING OFFICE
FORT HUACHUCA, AZ 85613-7000
DSN: 821-3877 COML: (520) 533-3877
FUNCTION: NEW EQUIPMENT TRAINING (MOS 33T)

MCGAYHEY, FRANK
CECOM READINESS: AMSEL-LC-RE-FM-IE
FT MONMOUTH, NJ 07703-5304
DSN: 992-3682 COML: (732)532--3682
FUNCTION: CHI, FORCE MOD, TRAINING

NELSON, COL RONALD J.
PM CGS/JTT: SFAE-IEW&S-JS
FT MONMOUTH, NJ 07703-5000
DSN: 987-5165 COML (732) 427-5165
FUNCTION: PROJECT MANAGER

N

OLESON, RICHARD
PEO-IEW&S SFAE-IEW&S
FT MONMOUTH, NJ 07703-5000
DSN: 987-2492 COML (732) 427-2492
FUNCTION: PEO LOGISTICS

O

O'NEILL, MARJ
CECOM LRC
FT MONMOUTH, NJ 07703-5000
DSN: 992-9891 COML (732) 532-9891
FUNCTION: GROUND STATION ITEM MANAGER

PEREZ, ARLEEN
MOTOROLA INC. SSTG
P. O. BOX 1417 8201 E. McDOWELL RD
SCOTTSDALE, AZ 85252
FUNCTION: TRAINER

P

QUINN, JOHN
PM JOINT STARS/JTT SFAE-IEW&S-JS
FT MONMOUTH, NJ 07703-5000
DSN: 987-5056 COML (732) 427-5056
FUNCTION: ELECTRONIC ENGINEER/GDT SCDL

Q

RANDALL, ELIZABETH
CECOM ATTN: AMSEL-LC-IEW-C-JS
FT MONMOUTH, NJ 07703-5000
DSN: 992-5357 COML (732) 532-5357
FUNCTION: CECOM IEW BRANCH CHIEF

R

RAPPAPORT, AARON
CECOM PROCUREMENT
AMSEL-ACCC-A-CC(RAP)
FT MONMOUTH, NJ 07703-5000
DSN: 992-3428 COML (732) 532-3428
FUNCTION: CONTRACTING OFFICER

REWINKEL, CINDY
MOTOROLA INC. SSTG
P. O. BOX 1417 8201 E. McDOWELL RD
SCOTTSDALE, AZ 85252
COML: (602) 441-7482 FAX: (602) 441-3802
FUNCTION: LOGISTICS ANALYST

RHOADS, BOB
MOTOROLA INC. SSTG
P. O. BOX 1417 8201 E. McDOWELL RD
SCOTTSDALE, AZ 85252
COML: (602) 441-8371
FUNCTION: LOGISTICS ANALYST

S

SCHUMM ,DON
MOTOROLA INC. SSTG
P. O. BOX 1417 8201 E. McDOWELL RD
SCOTTSDALE, AZ 85252
COML: (602) 441-3866
(480)441-3866

SHELTON, BILL
PM JOINT STARS/JTT (SYTEX)
FT MONMOUTH, NJ 07703-5000
DSN: 987-5008 COML (732) 427-5008
FUNCTION: SUPPORT CONTRACTOR

SHIMER, STAN
CECOM LRC: AMSEL-LC-IEW-C-JS
FT MONMOUTH, NJ 07703-5000
DSN: 987-5440 COML (732) 427-5440
FUNCTION:- TECHNICAL PUBLICATIONS

SPIVEY, OWEN
MTMC-TEA
NEWPORT NEWS, VA
COML (804) 599-1623
FUNCTION: TRANSPORTABILITY

SWIFT, CHARLIE
PM JOINT STARS/JTT/ (LSI)
FT MONMOUTH, NJ 07703-5000
DSN: 987-5126 COML (732) 427-5126
FUNCTION: SUPPORT CONTRACTOR

W

WUKITS, BRIAN
TRADOC SYSTEM MANAGER
ATSI-TSM-JS
FT HUACHUCA, AZ 85613-7000
DSN: 821-5201-5301 COML: (520) 533-5201/5301
FUNCTION: TSM OFFICE

APPENDIX C Safety Release

**Safety Suitability for Training Release Statement
for the
AN/TSQ-179(V)2 Joint STARS Common Ground Station (CGS)
October 2000**

1. The AN/TSQ-179(V)2 Joint STARS CGS is a shelterized intelligence system which receives, processes, displays, stores and transmits radar imagery data. This CGS configuration includes a CGS Mission Shelter mounted on a M1113 Extended Capacity HMMWV, a Support Vehicle (M1097 Heavy HMMWV), and a Cargo Vehicle (M1097 Heavy HMMWV). The (V)2 configuration incorporates a redesigned cab workstation mount, along with the addition of a KIV-7, and a KG-84A encryption device. Six AN/TSQ-179(V)2 systems are being fielded to the U.S. Army Intelligence Center and Fort Huachuca (USAIC&FH). The systems will be fielded without a generator; however, MEP-803A generators mounted on stationary High Mobility Trailers (HMT's) located at Fort Huachuca will be utilized for generator and switchbox operator training.
2. The equipment does not contain munitions or explosives. GFE items used in the CGS do contain small amounts of radioactive material. These systems will be used in accordance with the requirements listed in the appropriate Nuclear Regulatory Commission (NRC) license for each GFE item.
3. All recommendations contained in the CGS Health Hazard Assessment Report (HHAR), dated August 1997, have been implemented.
4. A Safety Assessment Report, prepared by Motorola Corporation, was reviewed and approved by the CECOM Directorate for Safety in November 1997. An updated report, incorporating the Support Vehicle loading plan, was provided in July 1999. All hazards have been entered into the CECOM Hazard Tracking System.
5. Mr. Jay Hanrahan, of the CECOM Directorate for Safety, conducted a safety inspection of the CGS during April 1997. All corrective actions identified as a result of this inspection have been implemented. On 3-4 June 1999, Mr. Hanrahan performed a safety inspection/evaluation of the modified load plan for the CGS Support Vehicle; all recommended corrective actions have been implemented.
6. Production Qualification Testing (PQT) was conducted on the baseline CGS during June-August 1997, and follow-up testing was conducted during February 1998. All safety hazards identified during testing have been corrected.
7. The CGS technical manuals have been reviewed, and safety warnings and procedures have been incorporated. Motorola has prepared Load Plans, to illustrate to users the location of the re-located CGS equipment. These Load Plans will be incorporated into the CGS TM's.

**Safety Suitability for Training Release Statement
for the
AN/TSQ-179(V)2 Joint STARS Common Ground Station (CGS)
October 2000**

8. The CGS has been evaluated for potential impacts on the quality of the human environment through review of relevant background information, in accordance with the requirements of the National Environmental Policy Act (NEPA). This evaluation, documented in a Record of Environmental Consideration, March 1998, concludes that the CGS is not expected to result in a significant adverse impact on the quality of the human environment, nor is it expected to be environmentally controversial.

9. Based on the above information, the AN/TSQ-179(V)2 CGS is considered safe and suitable for training release.

Prepared By: /S/ Richard LaScala
for JAMES M. HANRAHAN
System Safety Engineer

Reviewed by: /S/ Richard LaScala
RICHARD A. LaSCALA
Chief, IEW/S Sys Engrg Div

Approved By: /S/ Joseph Santarsiero
for STEPHEN G. LaPOINT
Director, Directorate
for Safety

APPENDIX D CGS Maintenance Allocation Chart

MAINTENANCE ALLOCATION CHART (MAC)

INTRODUCTION

B-1. GENERAL

This introduction provides a summary of the maintenance operations for the AN/TSQ-179(V)2. It authorizes levels of maintenance for specific maintenance functions on repairable items and components, and the tools and equipment required to perform each function. This introduction can be used as an aid in planning maintenance operations.

B-2. MAINTENANCE FUNCTION

Maintenance functions are limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

b. Test. To verify serviceability and to detect incipient failure through fault location, or by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition; i.e., to clean (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, fluids, or air supplies.

d. Adjust. To maintain within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Replace. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

g. Repair. The application of maintenance functions (inspect, test, service, adjust, align, calibrate, replace, install) or other maintenance actions (welding, grinding, riveting, straightening, facing, re-machining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or subassembly), end item, or system.

h. Overhaul. That maintenance effort (function/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

B-3. COLUMN ENTRIES

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules which when used together perform a specific function.

b. Column 2, Components/Assembly. Column 2 contains the official noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized. Reference designators, when available, are also listed.

c. Column 3, Maintenance Function. Column 3 lists the functions to be performed on the item listed in column 2. When an item is listed without a repair maintenance function, it is solely for the purpose of having group numbers in the MAC and RPSTL coincide.

d. Column 4, Maintenance Level. Column 4 specifies, by the listing of a “work-time” figure in the appropriate sub column(s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the task within the listed maintenance functions vary at different maintenance levels, appropriate “work-time” figures are shown for each level. The number of task-hours specified by the “work-time” figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. Sub columns of column 4 are as follows:

C Operator/Crew

O Organizational

F Direct Support

H General Support

D Depot

NOTE

An asterisk (*) in the maintenance level column (4) for depot indicates the maintenance is performed by contractor logistics support. An asterisk in any level other than depot identifies where maintenance begins as indicated by the technical manual referenced in the remarks code column.

e. Column 5, Tools and Test Equipment Reference Code. Column 5 specifies, by code, those common tools, special tools, test, and support equipment required to perform the designated function, see Section III.

f. Column 6, Remarks. Contains an alphabetic code, which leads to a remark in Section IV, which is pertinent to the item opposite the particular code.

B-4. TOOL AND TEST EQUIPMENT REQUIREMENTS (SECTION III)

a. Tool or Test Equipment Reference Code. The numbers in this column coincide with the numbers used in the tools and equipment reference code column of the MAC, see Section II. The numbers indicate the applicable tools or test equipment required for each maintenance function.

b. Maintenance Level. The codes in this column indicate the maintenance level allocated the tool or test equipment.

c. Nomenclature. This column indicates the noun nomenclature of the tools and test equipment required to perform the maintenance functions.

d. National Stock Number. This column lists the authorized National or NATO stock number for the specific tool or test equipment.

e. Tool Number. This column lists the authorized manufacturer's part number of the tool.

B-5. REMARKS (SECTION IV)

a. Reference Code. This code refers to the appropriate item in Section II, Column 6.

b. Remarks. This column provides the required explanatory information necessary to clarify the degree of maintenance for the function appearing in Section II.

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C	TARGET ACQUISITION SUBSYSTEM AN/TSQ-179(V) 2	TEST TEST REPAIR REPAIR OVERHAUL		0.1	0.1 12.0		* *		BN
C03	SHELTER GROUP	INSPECT TEST REPLACE REPAIR REPAIR	0.1	0.1	2.0		11 20, 29 29		A BN
C0301	PANEL, SIGNAL DISTRIBUTION (1A51)	REPLACE REPAIR			0.2		29 *		
C0302	PANEL, SIGNAL DISTRIBUTION (CURBSIDE) (1A55)	REPLACE REPAIR REPAIR			0.6 0.1		29 *		B
C0303	PANEL, INTERCONNECT (ROADSIDE FWD) (1A57)	REPLACE REPAIR			0.2		29 *		
C0304	BOX, INTERCONNECTING (SATCOM SIGNAL) (1A58)	REPLACE REPAIR			0.3		29 *		
C0305	PANEL, CHEMICAL AGENT (NBC ALARM) (1A86)	REPLACE REPAIR			0.2		29 *		
C0306	CHAIR, ROTARY	REPLACE REPAIR		0.1			* *		
C0307	CHAIR, ROTARY	REPLACE REPAIR		0.1			*		
C0308	MAST ASSEMBLY	REPLACE REPAIR REPAIR		0.1 0.1			29, 38 *		C

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C0309	PANEL, INPUT/OUTPUT (1A147)	REPLACE REPAIR			0.3		*	29	
C0310	MAST, ARL ANTENNA (1A139A2)	REPLACE REPAIR		0.1			*		
C04	ENVIRONMENTAL CONTROL GROUP	REPLACE REPAIR REPAIR REPAIR		0.3	0.7		*	15, 29, 39 6, 16, 17, 29, 30	D, BN E, BN
C0401	AIR CONDITIONER (1A75A1)	INSPECT SERVICE TEST TEST REPLACE REPAIR REPAIR	0.1 0.1	0.4	0.4			29 29 18 15, 25, 29, 31	F F1
C0402	ASSEMBLY, CONTROL MODULE (A/C CONTROL MODULE) (1A75A2)	REPLACE REPAIR		0.1			*	29	
REF	GAS PARTICULATE FILTER UNIT (M93)	TEST TEST		0.3	0.3			18	G
C0403	GAS PARTICULATE FILTER UNIT (1A77)	REPLACE REPAIR REPAIR		0.3	0.5		*	29 6, 16, 17, 29	H TM1
C0404	SYSTEM CONTROL MODULE, GPFU (GPFU CONTROL MODULE) (1A78)	REPLACE REPAIR		0.1	*			29	TM1
(REF)	NBC DETECTOR EQUIPMENT								
C0405	MAINTENANCE KIT, CBR (M273)	REPLACE REPAIR		0.1			*		TM2
C0406	MONITOR, CHEMICAL AGENT	REPLACE REPAIR		0.1			*		TM3

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C0407	DETECTOR UNIT, CHEMICAL AGENT (M256A1)	REPLACE REPAIR		0.1			*		TM4
C0408	ALARM UNIT, CHEMICAL (M42)	REPLACE REPAIR		0.1	*				TM5
C0409	ALARM UNIT, CHEMICAL (M42)	REPLACE REPAIR		0.1	*				TM5
C0410	DECONTAMINATING KIT, CBR (M258A1)	REPLACE REPAIR		0.1			*		TM6
C0411	DECONTAMINATING APPARATUS (M13)	REPLACE REPAIR		0.1 *					TM6
C0412	DETECTOR UNIT, CHEMICAL AGENT AUTOMATIC ALARM (M43A1)	REPLACE REPAIR		0.1			*		TM3
C05	POWER GENERATION GROUP	INSPECT	0.1					11	
		TEST		0.3				18	
		REPLACE					*		
		REPAIR		0.3					BN
		REPAIR			0.5		*		BN
		REPAIR							
C0501	GENERATOR SET, SKID MOUNTED, TACTICAL QUIET (MISSION GEN)	INSPECT REPLACE REPAIR	0.1		0.5			11 11,19,25,29,31,43	TM7
C0502	GENERATOR SET, SKID MOUNTED, TACTICAL QUIET (SUPPORT GEN)	INSPECT REPLACE REPAIR	0.1		0.5			11 11, 19, 25, 29, 31, 43	TM7
C0503	SWITCH BOX	REPLACE REPAIR		0.3				19, 29	
C0504	CABLE ASSEMBLY, POWER, ELECTRICAL (1W4)	INSPECT REPLACE REPAIR	0.1	0.2				11 19	

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C0505	CABLE ASSEMBLY, POWER, ELECTRICAL (1W6)	INSPECT REPLACE REPAIR	0.1	0.2			*	11 19, 24, 29	
C0506	CABLE ASSEMBLY, POWER, ELECTRICAL (1W5)	INSPECT REPLACE REPAIR	0.1	0.2			*	11 19, 29	
C06	POWER DISTRIBUTION GROUP (TO INCLUDE SHELTER LIGHTING AND RACK POWER)	TEST TEST TEST REPLACE REPAIR REPAIR	0.1	0.3	0.4		*	6, 16, 17 6, 16, 17, 18, 29 6, 16, 17, 29 6, 13, 16, 17, 20, 29, 30, 32, 33, 35, 36, 37, 39, 41, 42	J, BN I, K, L, M, O, BN
C0601	POWER SUPPLY, 28VDC	REPLACE REPAIR			0.2		*	6, 16, 17, 29, 37	
C0602	POWER SUPPLY (UPS) (1A73)	SERVICE REPLACE REPAIR	0.1	0.2			*	29	N, TB1
C07	AUTOMATED DATA PROCESSING GROUP	TEST TEST REPLACE REPAIR REPAIR REPAIR		0.3	0.2		*	4, 29 18, 29 29	BN P
C0701	COMPUTER, DIGITAL DATA TRANSFER (SERVER) (1A6)	REPLACE REPAIR			0.1		*	29	TB1
C070101	CIRCUIT CARD ASSEMBLY (CPU/ MEMORY) (1A6A0)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070102	CIRCUIT CARD ASSEMBLY (I/O) (1A6A1)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C070103	CIRCUIT CARD ASSEMBLY (CPU/ MEMORY) (1A6A2)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070104	CIRCUIT CARD ASSEMBLY (I/O) (1A6A3)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070105	CIRCUIT CARD ASSEMBLY (CPU/ MEMORY) (1A6A4)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070106	CIRCUIT CARD ASSEMBLY (I/O) (1A6A5)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070107	RECORDER-REPRODUCER SET, SIGNAL DATA (SCSI TRAY)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070108	CIRCUIT CARD ASSEMBLY (CLOCK BOARD)	REPLACE REPAIR			0.1		*	26, 27, 29	TB1
C070109	KEY SWITCH MODULE	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070110	POWER SUPPLY (POWER/COOLING) (1A6PS0)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070111	POWER SUPPLY (POWER/COOLING) (1A6PS1)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070112	POWER SUPPLY (POWER/COOLING) (1A6PS2)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070113	POWER SUPPLY (POWER/COOLING) (1A6PS3)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070114	POWER SUPPLY, PERIPHERAL	REPLACE REPAIR		0.1			*	26, 27, 29	TB1

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C070115	FAN, CIRCULATING (FAN TRAY ASSEMBLY)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070116	CIRCUIT CARD ASSEMBLY (I/O) (1A6A7)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C0702	DISK DRIVE UNIT, OPTICAL (RAID) (1A23)	SERVICE REPLACE REPAIR REPAIR	0.2		0.2			4 29	Q R,BN
C070201	DUAL FAN UNIT (1A23A6)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070202	RAID CONTROLLER (1A23A3)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070203	RAID CONTROLLER (1A23A4)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070204	SYSTEM CONTROLLER (1A23A5)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070205	POWER SUPPLY, AC (1A23A1)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C070206	POWER SUPPLY, AC (1A23A2)	REPLACE REPAIR		0.1			*	26, 27, 29	TB1
C0703	PRINTER, AUTOMATIC DATA PROCESS (TEXT PRINTER) (1A46A1)	SERVICE REPLACE REPAIR REPAIR	0.2	0.1	0.1		*	29	S, TB1 T
C0704	DIGITIZER ASSEMBLY (1A84)	INSPECT REPAIR REPAIR REPAIR	0.1	0.2	0.1		*	29 29	U,BN V

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C070401	MOUSE, DATA ENTRY (1A84A1)	REPLACE REPAIR		0.1			*		
C070402	DIGITIZER, DATA ENTRY (PLOTTER BOARD) (1A84A2)	SERVICE REPLACE REPAIR	0.1	0.2			*	29	W
C070403	DIGITIZER, DATA ENTRY (DIGITIZER CONTROLLER) (1A84A3)	REPLACE REPAIR		0.3			*	29, 33	
C0705	ADAPTER, CABLE BREAKOUT (SERVER BREAKOUT BOX) (1A71)	REPLACE REPAIR REPAIR			0.2 0.1		*	29 29	X
C0706	ADAPTER, CABLE BREAKOUT (SERVER BREAKOUT BOX) (1A72)	REPLACE REPAIR			0.3		*	29	
C0707	ADAPTER, CABLE BREAKOUT (SERVER BREAKOUT BOX) (1A132)	REPLACE REPAIR			0.3		*	29	
C0708	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (1A1W194)	REPLACE REPAIR			0.1		*	29	
C0709	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (1A1W245)	REPLACE REPAIR			0.1		*	29	
C0710	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (1A1W246)	REPLACE REPAIR			0.1		*	29	
C08	WORKSTATION (W/S) GROUP	TEST TEST REPLACE REPAIR REPAIR REPAIR		0.6 0.2 0.3	 0.3 0.3		 * *	4 18 29 29	Y,BN,BI Z,BN,BM, BJ

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
(REF)	INTERNAL WORKSTATION								
C0801	MONITOR, COORDINATE DATA (ROADSIDE MONITOR) (1A3)	SERVICE REPLACE REPAIR	0.1	0.1			*	29	AA
C0802	KEYBOARD, DATA ENTRY (ROADSIDE KEYBOARD) (1A4)	REPLACE REPAIR		0.1			*	29	
C0803	PROCESSOR, RADAR TARGET DATA (ROADSIDE W/S COMPUTER) (1A8)	REPLACE REPAIR			0.3		*	29	
C0804	MONITOR, COORDINATE DATA (CURBSIDE MONITOR) (1A26)	SERVICE REPLACE REPAIR	0.1	0.1			*	29	AA
C0805	KEYBOARD, DATA ENTRY (CURBSIDE KEYBOARD) (1A27)	REPLACE REPAIR		0.1			*	29	
C0806	PROCESSOR, RADAR TARGET DATA (CURBSIDE W/S COMPUTER) (1A30)	REPLACE REPAIR			0.3		*	29	
C0807	PRINTER, VIDEO (COLOR PRINTER) (1A48)	SERVICE REPLACE REPAIR	0.1		0.2		*	5 29	AB, TB1
C0808	HUB (1A49)	REPLACE REPAIR REPAIR REPAIR		0.2 0.2			*	29 29 29	AH AC
C0809	DISK DRIVE (1A151A1)	REPLACE REPAIR			0.1		*	29	
C0810	DISK DRIVE (1A151A2)	REPLACE REPAIR			0.1		*	29	

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
(REF)	REMOTE WORKSTATION (1A144)	SERVICE TEST TEST	0.1	0.2	0.3			4 18, 29	AD
C0813	COMPUTER, DIGITAL (1A144A1A1)	REPLACE REPAIR REPAIR		0.1	0.2		*	29	BD
C0814	STORAGE DISK (1A144A1A2A4)	REPLACE REPAIR REPAIR REPAIR		0.1	0.1 0.1		*	29 29	BE BF
C0815	FLAT PANEL DISPLAY (1A144A2A1)	REPLACE REPAIR REPAIR REPAIR		0.1 0.1	0.1		*	29 29 29	BG BH
(REF)	REMOTE CAB DISPLAY (1A83)	TEST			0.3			29	
C0816	COMPUTER, DIGITAL (1A83A1)	SERVICE REPLACE REPAIR REPAIR REPAIR	0.1		0.1 0.1		*	29	AD BK BL
C0817	CONVERTER, MEDIA (1A83A2)	REPLACE REPAIR		0.1			*	29	
C0818	CABLE ASSEMBLY, FIBER OPTIC (1W15)	REPLACE REPAIR		0.2			*	29	
C0819	CABLE ASSEMBLY, FIBER OPTIC (1W16)	REPLACE REPAIR		0.1			*		

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C09	SENSOR INTERFACE GROUP	SERVICE INSPECT REPLACE REPAIR REPAIR REPAIR	0.3 0.1				*		
				0.2	0.3		*	15, 29 6, 16, 17, 29	AG AF
(REF)	GROUND DATA TERMINAL GROUP	TEST TEST		0.3	0.5			18, 29	
C0901	ANTENNA ASSEMBLY (MASTHEAD) (1A14E1)	REPLACE REPAIR		0.2			*		TM8
C0902	PROCESSOR, SIGNAL DATA (LCU) (1A14A2)	REPLACE REPAIR		0.2			*	29	TM8
C0903	CONVERTER, FREQUENCY (AC/AC CONVERTER) (1A14A3)	REPLACE REPAIR		0.2			*	29	TM8
C0904	INTERFACE UNIT, COMM (JSIU) (1A14A4)	REPLACE REPAIR		0.2			*	29	TM8
C0905	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (EMI/EMP FILTER) (1A14A5)	REPLACE REPAIR		0.1			*	14, 29	TM8
C0906	KEY GENERATOR, ASSEMBLY (KGV-8C) (1A14A6)	REPLACE REPAIR		0.1			*		TM8
C0907	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (1A14W1)	REPLACE REPAIR		0.1			*	29	
C0908	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (1A14W2)	REPLACE REPAIR		0.1			*	29	

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C0909	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (1A14W3)	REPLACE REPAIR		0.1			*	29	
C0910	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (1A14W4)	REPLACE REPAIR		0.1			*	29	
C0911	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (1A14W9)	REPLACE REPAIR		0.1			*		
C0912	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (1A14W9S)	REPLACE REPAIR		0.1			*		
C0913	CABLE ASSEMBLY, RADIO FREQUENCY (1A14W11)	REPLACE REPAIR		0.1			*		
C0914	CABLE ASSEMBLY, RADIO FREQUENCY (1A14W18)	REPLACE REPAIR		0.1			*		
C0915	INTERFACE UNIT, DATA TRANSFER (BUS COUPLER ASSEMBLY) (1A53A1)	REPLACE REPAIR			0.1		*	29	
(REF)	UAV INTERFACE GROUP	TEST TEST		0.3	0.3			18, 29	
C0916	RECORDER-REPRODUCER, VIDEO (VCR) (1A18)	SERVICE REPLACE REPAIR	0.3	0.1			*	29	TB1, AI
(REF)	COMMANDERS TACTICAL TERMINAL (CTT)	TEST TEST		0.5	0.5			18, 28, 29	TM19 TM19
C0917	ENCRYPTION EQUIPMENT TELEGRAPHY, GENERAL PURPOSE, TSEC/KG-84A (1A159)	REPLACE REPAIR		0.1			*	29	TM19

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C0918	AMPLIFIER ASSEMBLY (PREAMP) (1A33)	REPLACE REPAIR		0.1			*		TM19
C0919	RECEIVER-TRANSMITER, RADIO (CTT RRT) (1A50A1)	REPLACE REPAIR		0.1			*	29	TM19
C0920	PROCESSOR, SIGNAL DATA (CTT RB) (1A50A2)	REPLACE REPAIR		0.1			*	29	TM19
C0921	AMPLIFIER ASSEMBLY (PREAMP) (1A56)	REPLACE REPAIR		0.1			*		TM19
C0922	ANTENNA (CTT LOS ANTENNA) (1E9)	REPLACE REPAIR		0.1			*	12, 22, 38	TM19
C0923	DIPLEXER/AMPLIFIER (DIPLEXER/ PREAMP) (1A25)	REPLACE REPAIR			0.3		*	29	TM19
C0924	DIVIDER, POWER, RADIO FREQUENCY (POWER SPLITTER) (1A74)	REPLACE REPAIR			0.2		*	29	TM19
(REF)	GLOBAL POSITIONING SYSTEM	TEST TEST		0.3	0.5			4 18, 29	
C0925	ANTENNA CONTROL GROUP (GPS EXTERNAL ANTENNA) (1E5)	REPLACE REPAIR		0.1			*	15, 29	TM9
C0926	NAVIGATION SET, SATELLITE SIGNALS (GPS) (1A76)	REPLACE REPAIR		0.1			*	29	TM9
C0927	SWITCH, VIDEO (1A128)	REPLACE REPAIR REPAIR			0.1 0.1		*	29 29	AJ

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C0928	DECODER, DATA RECOVERY, (1A129)	REPLACE REPAIR			0.1		*	29	
C0929	IRIG ENCODER - DECODER (1A136)	REPLACE REPAIR		0.1			*	29	
C0930	IRIG ENCODER - DECODER (1A137)	REPLACE REPAIR		0.1			*	29	
C0931	CONTROLLER/RECEIVER, ARL (1A138)	REPLACE REPAIR		0.1			*	29	
C0932	CONTROLLER, PREDATOR (1A146)	REPLACE REPAIR		0.1			*	29	
C10	DATA COMMUNICATIONS GROUP	INSPECT REPLACE REPAIR REPAIR	0.1				*	1, 2, 3, 28	
				0.3				15, 29	AK,BN
					0.3			29	AL,AV,BN
(REF)	AFATDS COMMUNICATIONS	TEST TEST		0.5				29	
					0.5			18, 29	
C1001	MODEM COMMUNICATIONS (TCIM) (1A10)	REPLACE REPAIR		0.1			*	29	
C1002	ADAPTER, WIRELINE (1A21)	REPLACE REPAIR		0.1			*	29	
(REF)	LAN COMMUNICATIONS GROUP	TEST TEST		0.1					
					0.1			18, 29	
C1003	CONVERTER, SIGNAL DATA (1A16)	REPLACE REPAIR REPAIR REPAIR		0.3 0.2				29 29	AM BB
					0.2		*		
C1004	CONVERTER, SIGNAL DATA (1A17)	REPLACE REPAIR REPAIR REPAIR		0.3 0.2				29 29	AN BC
					0.2		*		

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C1005	CONVERTER, SIGNAL DATA (CONCENTRATOR) (1A22)	REPLACE REPAIR REPAIR		0.2	0.1		*	29 29	AO
C1006	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (1A1W263)	REPLACE REPAIR			0.2		*	29	
C1007	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (1A1W264)	REPLACE REPAIR			0.2		*	29	
C1008	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (1A1W265)	REPLACE REPAIR			0.2		*	29	
C1009	CABLE ASSEMBLY FIBER OPTIC (1W1)	REPLACE REPAIR		0.1			*		
C1010	CABLE ASSEMBLY, SPECIAL PURPOSE (1A1W78)	REPLACE REPAIR			0.2		*	29	
(REF)	Longbow Communications	TEST TEST		0.2	0.5			18, 29	
C1011	MODEM, COMMUNICATIONS (IDM) (1A29)	REPLACE REPAIR		0.1			*		
(REF)	SATELLITE COMMUNICATIONS	TEST TEST		0.3	0.6			1, 2, 3, 18, 28, 29	
C1012	RADIO SET (SATCOM RADIO) (1A32A1)	REPLACE REPAIR		0.1			*	29	TM10
C1013	AMPLIFIER, LINEAR (SATCOM POWER AMP) (1A32A4)	REPLACE REPAIR		0.1			*	29	TM10
C1014	POWER SUPPLY (SATCOM RADIO P/S) (1A32A5)	REPLACE REPAIR		0.1			*	29	TM10

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C1015	ANTENNA (SATCOM/CTT DIR ANTENNA) (1E6)	REPLACE REPAIR		0.1			*		
C1016	ANTENNA (SATCOM RECV ANTENNA) (1E7)	REPLACE REPAIR		0.3			*	15, 29	
C1017	ANTENNA (SATCOM/CTT DIR ANTENNA) (1E8)	REPLACE REPAIR		0.1			*		
C1018	DIPLEXER (SATCOM DIPLEXER) (1A32A2)	REPLACE REPAIR			0.2		*	29	
C1019	DIPLEXER (SATCOM DIPLEXER/PREAMP) (1A32A3)	REPLACE REPAIR			0.3		*	29	
C1021	POWER SUPPLY TRAY, KIV-7 (1A142A3)	REPLACE REPAIR			0.3		*	29	TB1
C1022	DEVICE, CRYPTOGRAPHIC KIV-7 (1A142A1)	REPLACE REPAIR			0.2		*	29	TB1
C1023	CONTROLLER, DATA (1A150)	REPLACE REPAIR		0.2			*	29	
(REF)	ASAS DATA COMMUNICATIONS	TEST TEST		0.3	0.3			18, 29	
C1024	TERMINAL, VOICE (KY-68) (1A24)	REPLACE REPAIR		0.2			*		
C1025	POWER SUPPLY ASSEMBLY (KY-68 POWER SUPPLY) (1A34)	REPLACE REPAIR			0.2		*	29	TM11

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C1026	ADAPTER, WIRELINE (1A112)	REPLACE REPAIR		0.1			*	29	
C11	VOICE COMMUNICATIONS GROUP	INSPECT REPLACE REPAIR REPAIR REPAIR	0.1				*	29, 34 29	AS,AX,BN AT,AW,AY BN
(REF)	RADIO SET VRC-83	TEST TEST		0.3	0.6			4, 29 1, 2, 3, 18, 28, 29	
C1101	RECEIVER-TRANSMITTER, RADIO (VRC- 83 RADIO) (1A7A1)	REPLACE REPAIR		0.1			*		TM12
C1102	AMPLIFIER, RADIO FREQUENCY (1A7A2)	REPLACE REPAIR		0.1			*		TM12
C1103	MOUNTING BASE, ELECTRICAL EQUIP (MT-6429 MOUNTING BASE) (1A7FL5)	REPLACE REPAIR		0.2	*			29	TM12
C1104	SPEECH EQUIPMENT (KY-57) (1A31)	REPLACE REPAIR		0.1			*	29	TM13
C1105	ANTENNA (VRC-83 ANTENNA) (1E4)	REPLACE REPAIR		0.1			*	23, 29, 38	
(REF)	RADIO SET, VRC-92	TEST TEST		0.4	0.6			4 1, 2, 3, 18, 28, 29	
C1106	RECEIVER-TRANSMITTER, RADIO (VRC- 92 RADIO) (1A11A1)	REPLACE REPAIR		0.2			*		TM14
C1107	ADAPTER, AMPLIFIER (AM-7239 AMPLIFIER ADAPTER) (1A11A2)	REPLACE REPAIR		0.2			*	29	TM14

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C1108	AMPLIFIER, RADIO FREQUENCY (AM- 7238 RF AMPLIFIER) (1A11A3)	REPLACE REPAIR		0.1			*		TM14
C1109	MOUNTING BASE, ELECTRICAL (MT-6352 MOUNTING BASE) (1A11A4)	REPLACE REPAIR		0.3			*	29	TM14
C1110	MOUNTING BASE, ELECTRICAL EQUIP (MT-6353 MOUNTING BASE) (1A11A6)	REPLACE REPAIR		0.3			*	29	TM14
C1111	RECEIVER-TRANSMITTER, RADIO (RT- 1523, VRC-92 RADIO) (1A11A7)	REPLACE REPAIR		0.1			*		TM14
C1112	AMPLIFIER, RADIO FREQUENCY (AM- 7238 RF AMPLIFIER) (1A11A8)	REPLACE REPAIR		0.1			*	29	TM14
C1113	ANTENNA (VRC-92 ANTENNA) (1E2)	REPLACE REPAIR		0.3			*	29, 36, 37	
C1114	ANTENNA (VRC-92 ANTENNA) (1E3)	REPLACE REPAIR		0.2			*	29, 36, 37	
(REF)	RADIO INTERFACE	TEST TEST		0.2	0.3			4 18, 29	
C1115	RADIO INTERFACE MODULE (RIM) (1A15)	REPLACE REPAIR		0.1			*	29	
C1116	HEADSET MICROPHONE (1A97)	REPLACE REPAIR		0.1			*		
C1117	HEADSET MICROPHONE (1A98)	REPLACE REPAIR		0.1			*		
C1118	HEADSET MICROPHONE (1A99)	REPLACE REPAIR		0.1			*		

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C1119	SWITCH, PUSH (PTT ASSEMBLY) (1A106)	REPLACE REPAIR		0.1			*		
C1120	SWITCH, PUSH (PTT ASSEMBLY) (1A107)	REPLACE REPAIR		0.1			*		
C1121	SWITCH, PUSH (PTT ASSEMBLY) (1A108)	REPLACE REPAIR		0.1			*		
(REF)	SECURE TELEPHONE/FACSIMILE COMMUNICATIONS GROUP	TEST TEST		0.1	0.3			4, 29 18, 29	
C1122	TELEPHONE, SECURE UNIT (SECURE PHONE) (1A35A1)	SERVICE REPLACE REPAIR	0.1	0.2			*	29	AZ, TB1
C1123	FACSIMILE SET (FAX) (1A35A2)	SERVICE REPLACE REPAIR	0.1	0.1			*	29	AU, TB1
C1124	CONVERTER, TELEGRAPH-TELEPHONE SIGNAL (1A35A3)	REPLACE REPAIR			0.2		*	29	TB1
(REF)	SECURE PHONE/DNVT COMMUNICATION	TEST TEST		0.1	0.3			4, 29 18, 29	
C1125	TELEPHONE, SECURE, UNIT (SECURE PHONE) 1A36A1)	SERVICE REPLACE REPAIR	0.1	0.2			*	21, 29	AZ, TB1
C1126	ADAPTER DNVT (DNVT) (1A36A2)	SERVICE REPLACE REPAIR	0.1	0.1			*	21, 29	AZ, TB1

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
(REF)	CAB RADIO COMMUNICATIONS	TEST TEST		0.3 0.5				29 18 29	
C1127	CONTROL, RADIO SET (CAB RADIO CONTROL) (1A60)	REPLACE REPAIR		0.1			*	29	TM15
C1128	CONTROL MONITOR (1A81)	REPLACE REPAIR		0.1			*	29	
(REF)	TRANSFER DEVICES	TEST		0.1					
C1129	READER, PUNCHED TAPE (KOI-18) (1A110)	REPLACE REPAIR		0.1			*		
C1130	AUTOMATED NET CONTROL DEVICE (AN/CYZ 10 V3) (1A111)	REPLACE REPAIR		0.1			*		
C1131	CABLE ASSEMBLY, FILL (1A1W190)	REPLACE REPAIR		0.1			*		
C1132	CABLE ASSEMBLY, TELEPHONE (1A1W191)	REPLACE REPAIR		0.1			*		
C12	VEHICLE EQUIPMENT GROUP	INSPECT REPLACE REPAIR REPAIR REPAIR	0.2		12.0 7.1			29	BA,BN BN
C1201	TRUCK, UTILITY, HMMMV, M1113 (MISSION TRUCK)	INSPECT SERVICE REPLACE REPAIR REPAIR	0.2 0.2		7.1			7, 8, 9, 25, 29, 31, 35	TM17 TM17

SECTION II. MAINTENANCE ALLOCATION CHART FOR AN/TSQ-179(V)2

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS & EQPT REF. CODE	(6) REMARK CODE
			C	O	F	H	D		
C1202	TRUCK, UTILITY, HMMMV, M1113 (SUPPORT TRUCK)	INSPECT SERVICE REPLACE REPAIR REPAIR	0.2 0.2		1.0			25, 29	TM17 TM17
C1203	TRAILER, CARGO HMT-H (MISSION TRAILER)	SERVICE INSPECT REPLACE REPAIR	0.2 0.2		2.8			25, 29, 31	TM18
C1204	TRAILER, CARGO HMT-H (SUPPORT TRAILER)	SERVICE INSPECT REPLACE REPAIR	0.2 0.2		2.8			25, 29	TM18

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS FOR AN/TSQ-179(V)2

TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
1	F	ADAPTER, CONNECTOR	5935-00-573-0320	UG-83/U
2	F	ADAPTER, CONNECTOR	5935-00-739-2242	UG-349A/U
3	F	ADAPTER, CONNECTOR	5935-01-056-6282	79825
4	O	BRUSH, CLEANING	7920-00-205-0565	H-B-1654
5	C	CLEANING KIT (CAGE: 80009)		016-1332-00
6	O, F	CORD, EXTENSION (CAGE: 39428)	6150-01-306-4312	7133J36
7	F	DRILL, ELECTRIC, PORTABLE	5130-00-283-3231	7204
8	F	DRILL, TWIST, 1/8 INCH	5133-00-227-9650	DBF1/8B
9	F	DRILL, TWIST, 3/16 INCH	5133-00-227-9654	DBF3/16B
10	O	FUSE PULLER	5120-00-224-9456	W-P-796
11	C, O, F	GLOVES, LEATHER	8415-00-634-4660	37G2943
12	O	HANDLE, SOCKET WRENCH, 1/2 DRIVE	5120-00-236-7590	116557786-1
13	F	HEATER, GUN TYPE	4940-01-106-3787	45B345
14	O	KEY, SOCKET HEAD, 7/64 INCH	5120-00-889-2162	A-A-2473
15	O, F	LADDER, SAFETY STEP, (8FT)	5440-00-227-1594	

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS FOR AN/TSQ-179(V)2

TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
16	O, C, F	LAMP, EXTENSION	6230-01-354-1205	1546K11
17	O, F	LAMP, INCANDESCENT	6240-01-363-3810	1506K21
18	O, F	MULTIMETER, DIGITAL	6625-01-265-6000	AN/PSM-45A
19	O, F	PLIERS, ADJUSTABLE, 16 INCH	5120-00-781-0820	G274
20	F	SCREWDRIVER, CROSS-TIP #3 X 6 INCH	5120-00-234-8912	SSDP63
21	O	SCREWDRIVER, SIX POINT TIP	5120-00-168-1132	XTD-20
22	O	SOCKET, SOCKET WRENCH, 3/4 X 1/2 DRIVE	5120-00-242-3349	SD-1224
23	O	SOCKET, SOCKET WRENCH 3/4 X 3/8 DRIVE	5120-00-237-0930	BU-1224
24	O	SOCKET, SOCKET WRENCH, 5/8 X 3/8 DRIVE	5120-00-935-7442	11-020
25	O, F	STRAP, LIFTING (CAGE: 39428)		3383T476
26	O, F	STRAP, WRIST GROUND	4240-01-165-8865	2066 LARGE
27	O, F	STRAP, WRIST GROUND	4240-01-165-8866	2066 SMALL
28	F	TEST SET, RF POWER	6625-01-288-6515	AN/URM-213
29	C, O, F	TOOL KIT, ELECTRONIC EQUIPMENT	5180-00-064-5178	TK-101/G
30	F	TOOL KIT, ELECTRONIC EQUIPMENT	5180-01-195-0855	TK-17/G
31	O, F	TOOL KIT, GENERAL MECHANIC	5180-00-699-5273	
32	F	WRENCH, BOX AND OPEN END, 3/16 INCH	5120-00-892-6089	A-A-1358
33	O, F	WRENCH, BOX AND OPEN END, 1/4 INCH	5120-00-288-9997	1208
34	O, F	WRENCH, BOX AND OPEN, 5/16 INCH	5120-01-335-9503	OEX100
35	F	WRENCH, BOX AND OPEN END, 11/32 INCH	5120-00-278-0342	1650846
36	O, F	WRENCH, BOX AND OPEN END, 5/8 INCH	5120-00-228-9508	OEX200
37	O, F	WRENCH, BOX AND OPEN END 11/16 INCH	5120-00-228-9509	GGG-W0636
38	O, F	WRENCH, BOX AND OPEN, 3/4 INCH	5120-00-228-9510	OEX24A
39	O, F	WRENCH, BOX AND OPEN END, 1-1/16 INCH	5120-00-203-4811	1234
40	F	WRENCH, BOX AND OPEN END, 1-1/4 INCH	5120-00-228-9517	41W867
41	F	WRENCH, BOX AND OPEN END, 1-5/8 INCH	5120-00-203-4802	9B1496
42	F	WRENCH, OPEN END, 9/16 X 5/8 INCH (THIN)	5120-00-184-8555	104-73081-5
43	F	WRENCH, TORQUE, 1/2 DRIVE	5120-01-042-0982	TCI-250FRN

	SECTION IV. REMARKS FOR AN/TSQ-179(V)2
REFERENCE CODE	REMARKS
A	REPAIR BY REPLACING BLACKOUT CURTAINS, JUMPSEAT.
B	REPAIR BY REPLACING SIGNAL ENTRY PANEL ADAPTER.
C	REPAIR BY REPLACING MAST WINCH, MAST WINCH CABLE, AND LOWER MAST PULLEY.
D	REPAIR BY REPLACING CABLES 1A75W1, 1A75W2, AND 1A75W3.
E	REPAIR BY REPLACING CABLES 1W29, 1W32, AND 1A1W9.
F	CLEAN AIR CONDITIONER CONDENSATE DRAINS AS REQUIRED, CLEAN AIR CONDITIONER FILTERS MONTHLY.
F1	REPAIR BY REPLACING FILTERS 50027-50028.
G	TEST CIRCUIT BREAKERS MONTHLY.
H	REPAIR BY REPLACING CABLE 1A52A2W2.
I	REPAIR BY REPLACING, CURBSIDE LIGHT CONTROL RESISTORS R1 AND R2, ROADSIDE LIGHT CONTROL RESISTORS R1 THRU R4, SWITCH 1S1, SWITCH 1S2, AC POWER STRIPS 1A41, 1A42, 1A43, 1A44, 1A45, 1A153, 1A154, AND DC POWER STRIPS 1A64, 1A65, 1A66, 1A67, AND 1A68.
J	REPAIR BY REPLACING ROADSIDE AND CURBSIDE LAMP AND DIGITIZER LAMP.
K	REPAIR BY REPLACING CIRCUIT BREAKERS CB1 THRU CB13, POWER MONITOR A1, RESISTORS R1/R2, SWITCHES S1 THRU S6, METERS M1/M2/M3, RELAYS K1/K3/K4, INDICATORS DS1 THRU DS3 AND CONVENIENCE OUTLET 1A52A1J14/J15.
L	REPAIR BY REPLACING CIRCUIT BREAKERS CB1 THRU CB4, FILTERS FL1/FL2/FL3/FL4/FL5/FL9 THRU FL12, FL14 THRU FL16, VARISTORS A1 THRU A5, RELAY K2, TRANSFORMERS CT1 THRU CT3, RESISTORS R1 THRU R12, INDUCTORS L1 THRU L4, CABLES 1A1W2, 1W3, AND 1A1W291.
M	REPAIR BY REPLACING INTERLOCK SWITCH S7.
N	CLEAN INTAKE FILTER/EXHAUST LOUVERS MONTHLY.
O	REPAIR BY REPLACING CABLE 1A1W297.
P	REPAIR BY REPLACING CABLES 1A1W54, 1A1W55, 1A1W56, 1A1W110, 1A1W130, 1A1W136, 1A1W80, 1A6W1, 1A23W1, 1A1W250, 1A1W251, 1A1W220, 1A1W225, AND 1A1W226.
Q	CLEAN DISK DRIVE AIR FILTER MONTHLY.
R	REPAIR BY REPLACING DISK CARTRIDGE.
S	CLEAN INTERIOR/EXTERIOR AND PRINthead. REPLACE TEXT PRINTER TONER CARTRIDGE OR INK TANK AS REQUIRED.
T	REPAIR BY REPLACING TEXT PRINTER AC POWER ADAPTER 1A46A2.
U	REPAIR BY REPLACING POWER SUPPLY 1A84PS1W1.
V	REPAIR BY REPLACING CABLE 1A84W1. REPAIR BY REMOVING AND REPLACING AUTHORIZED LOWER INDENTURED ASSEMBLIES.
W	CLEAN PLOTTING BOARD DAILY BEFORE OPERATION.
X	REPAIR BY REPLACING BREAKOUT BOX POWER SUPPLY 1A71A1 AND CABLE 1A71PS1W1.
Y	REPAIR BY REPLACING MOUSE 1A5, 1A28, AND MAU 1A48CP1.
Z	REPAIR BY REPLACING AC ADAPTER 1A49PS1, 4:1 SWITCH 1A89, CABLES 1A1W114, 1A1W115, 1A1W150, 1A1W151, 1A1W247, 1A1W248, 1A1W294, 1A1W296, 1A3W1, 1A8W1, 1A26W1, 1A30W1, 1A48W1, 1A49PS1W1, 1A1W266, 1A1W249, AND DISK DRIVE TRAY.
AA	CLEAN MONITOR DAILY.
AB	CLEAN SEMIANNUALLY. REPLACE COLOR PRINTER TRANSFER ROLL AND QUICK CLEAN AS REQUIRED.
AC	REPAIR BY REPLACING AC ADAPTER 1A49A1.
AD	CLEAN RWS DAILY.

SECTION IV. REMARKS FOR AN/TSQ-179(V)2	
REFERENCE CODE	REMARKS
AF	REPAIR BY REPLACING, BUS COUPLER 1A53A2/1A53A3, TERMINATOR 1AT1/1AT2, TERMINATOR 1A100/1A101, 1A102/1A103, CABLES 1A1W25, 1A1W40, 1A1W43, 1A1W44, 1A1W52, 1A1W53, 1A1W82, 1A1W85, 1A1W97, 1A1W175, 1A1W176, 1A1W177, 1A1W178, 1A1W179, 1A51W9, 1A1W222, 1A1W227, 1A1W280, 1A1W281, 1A1W282, 1A1W292, 1A1W293, 1A1W299, 1A1W300, 1A159PS1W1, 1W46, RF FILTER 1A51FL, DIVIDER/COMBINER 1A51A5, RF SWITCHES 1A51A1/A2/A3/A4, AND ROTARY SWITCH 1A151A4.
AG	REPAIR BY REPLACING CABLES 1W7, 1W8, 1W21, 1W22, 1W23, 1W24, 1W31, 1W33, 1W34, 1W35, 1W36, 1W37, 1W44, 1W45, 1W47, 1A1W276, CONVERTERS 1A140 AND 1A141, AND GPS POWER CONNECTOR BOX 1A82.
AH	REPAIR BY REPLACING MICRO MODULE 1A49A2.
AI	CLEAN VCR HEADS QUARTERLY.
AJ	REPAIR BY REPLACING POWER SUPPLY 1A128A1.
AK	REPAIR BY REPLACING CABLES 1W19, 1W20, 1A7W9, 1A32W7, 1A1W192, STRAIGHT ADAPTER 1A113, AND COUPLERS 1CP1/1CP2.
AL	REPAIR BY REPLACING POWER SPLITTER 1A32A7, AND CABLES 1A1W23, 1A1W30, 1A1W35, 1A1W36, 1A1W39, 1A1W42, 1A1W59, 1A1W66, 1A1W79, 1A1W100, 1A1W102, 1A1W120, 1A1W121, 1A1W174, 1A1W180, 1A1W181, 1A1W182, 1A22W1, 1A32W6, 1A32W9, 1A51W3, 1A51W4, 1A51W5, 1A51W6, 1A51W8, 1A52A1W41, 1A142PS1W1, 1A1W224, 1A1W219, 1A1W235, 1A1W236, 1A1W238, 1A1W239, 1A1W267, 1A1W268, 1A1W269, 1A1W270, 1A1W271, 1A1W275, 1A1W228, 1A1W277, 1A1W287, SWITCH 1A151A3, AND LOAD TERMINATION 1E7AT1.
AM	REPAIR BY REPLACING AC ADAPTER 1A16A1.
AN	REPAIR BY REPLACING AC ADAPTER 1A17A1.
AO	REPAIR BY REPLACING CABLES 1A1W4.
AP	REPAIR BY REPLACING CABLE 1A1W60.
AQ	REPAIR BY REPLACING CABLE 1A1W61.
AR	NOT USED
AS	REPAIR BY REPLACING PHONE/FAX RINGER 1A80, SPLITTER 1A35A4, COUPLER 1A35A5, AND CABLES 1A1W123, 1A1W144, 1A7W2, 1A7W3, 1A7W7, 1A11W1, 1A11W2, 1A11W3, 1A11W5, 1A11W11, 1A11W12, 1W2, 1W27, 1W28, SPEAKER 1A61, AND HANDSET 1A62.
AT	REPAIR BY REPLACING 1A11FL1, 1A11FL2, AND CABLES 1A1W16, 1A1W26, 1A1W32, 1A1W64, 1A1W89, 1A1W90, 1A1W93, 1A1W101, 1A1W154, 1A1W155, 1A1W158, 1A1W159, 1A1W160, 1A1W161, 1A7W5, 1A7W6, 1A7W10, 1A11W6, 1A11W9, 1A11W10, 1A11W13, 1A11W14, 1A11W15, 1A11W16, 1A11W17, 1A11W18, 1A11W19, 1A11W20, AND 1A11W95.
AU	CLEAN MONTHLY. CLEAN SCANNER, PRINthead AND WHITE ROLLERS WEEKLY.
AV	REPAIR BY REPLACING RADIO POWER DIVIDER.
AW	REPAIR BY REPLACING CABLES 1A35A1PS1W1, 1A35A3PSW1, AND 1A36PS1W1.
AX	REPAIR BY REPLACING CONVERTERS 1A36A3, AND 1A35A7.
AY	REPAIR BY REPLACING CABLE 1A1W19.
AZ	CLEAN MONTHLY.
BA	REPAIR BY REPLACING CYLINDRICAL BUBBLE LEVEL.
BB	REPAIR BY REPLACING CABLE 1A16PS1W1.
BC	REPAIR BY REPLACING CABLE 1A17PS1W1.
BD	REPAIR BY REPLACING CABLE 1A144A1A1W1.
BE	REPAIR BY REPLACING POWER SUPPLY 1A144A1A2A4PS1 AND CABLE 1A144A1A2A4W1.
BF	REPAIR BY REPLACING TERMINATOR 1A144A1A2A4AT1.
BG	REPAIR BY REPLACING CABLES 1A144A2A1W1 AND 1A144A2A1W3.
BH	REPAIR BY REPLACING POWER SUPPLY 1A144A2A1PS1 AND CABLE 1A144A2A1W2.
BI	REPAIR BY REPLACING CABLES 1A144A1W1, 1A144A1W6, 1A144A1A2W2, 1A144A1A2W3, 1A144A1A3W1, 1W39, 1W41, VIDEO SPLITTER 1A144A1A2A1, VIDEO CONVERTER 1A144A1A2A2, POWER SUPPLIES 1A144A1A2A1T1, 1A144A1A2A2T1, 1A144A1A2A3T1, KEYBOARD 1A144A2A2, MOUSE 1A144A2A3 AND CONVERTER 1A157.

SECTION IV. REMARKS FOR AN/TSQ-179(V)2	
REFERENCE CODE	REMARKS
BJ	REPAIR BY REPLACING CABLES 1A144A1W2, 1A144A1W3, 1A144A1W4, 1A144A1W5, 1A144A1A2W1, 1A1W221, 1A1W261, 1A157PS1W1, AND CONVERTER 1A144A1A2A3.
BK	REPAIR BY REPLACING POWER SUPPLY 1A83A1PS1 AND CABLE 1A83A1PS1W1.
BL	REPAIR BY REPLACING CIRCUIT CARD ASSEMBLY 1A83A1A1.
BM	REPAIR BY REPLACING CABLES 1A83W1, 1A83W2, AND 1A83W3.
BN	REPAIR BY REPLACING LOWER INDENTURES.
TB1	COMMERCIAL-OFF-THE-SHELF (COTS) EQUIPMENT APPLICABLE TECHNICAL BULLETIN TB 11-5865-348-13-2
TM1	FILTER UNIT, GAS PARTICULATE APPLICABLE TECHNICAL MANUAL: TM 3-4240-325-20&P
TM2	MAINTENANCE KIT, CBR, M273 APPLICABLE TECHNICAL MANUAL: TM 3-6665-321-12&P
TM3	MONITOR CHEMICAL AGENT M43A1 APPLICABLE TECHNICAL MANUAL: TM 3-6665-312-12&P
TM4	DETECTOR KIT, CHEMICAL AGENT AUTO ALARM, M256A1 APPLICABLE TECHNICAL MANUAL: TM 3-6665-307-10
TM5	CHEMICAL AGENT, AUTOMATIC, M42 APPLICABLE TECHNICAL MANUAL: TM 3-6665-225-12
TM6	DECONTAMINATION KIT, NBC M258A1 APPLICABLE TECHNICAL MANUAL: TM 3-4230-216-10
TM7	GENERATOR SET, TACTICAL QUIET 10 KW, MEP-803A APPLICABLE TECHNICAL MANUAL S: TM 9-6115-642-10, TM 9-6115-642-24, TM 9-6115-642-24P
TM8	GROUND DATA TERMINAL, OZ-64/GRY APPLICABLE TECHNICAL MANUAL: TM 11-5865-1026-23&P
TM9	SATELLITE SIGNALS NAVIGATION SET, (AN/PSN-11) APPLICABLE TECHNICAL MANUAL : TM 11-5825-291-13
TM10	RADIO SET, AN/PSC-5 APPLICABLE TECHNICAL MANUAL: TM 11-5820-1130-12&P
TM11	DIGITAL SUBSCRIBER VOICE TERMINAL, TSEC/KY-68 APPLICABLE TECHNICAL MANUALS: TM 11-5810-329-10, TM 11-5810-329-23
TM12	RADIO SET AN/VRC-83(V)3 APPLICABLE TECHNICAL MANUAL: TM 11-5820-1149-14&P
TM13	COMMUNICATION SECURITY EQUIPMENT, KY-57 AND HYX-57 APPLICABLE TECHNICAL MANUALS: TM 11-5810-256-12, TM 11-5810-256-34, TM 11-5810-256-34P
TM14	RADIO SETS, AN/VRC-92 OR VRC-92A APPLICABLE TECHNICAL MANUALS: TM 11-5820-890-10-1, TM 11-5820-890-20, TM 11-5820 890-20P, TM 11-5820-890-30, TM 11-5820-890-30P
TM15	CONTROL, RADIO SET, C-2299/VRC AND HANDSET H-250/U APPLICABLE TECHNICAL MANUAL: TM 11-5820-401-12
TM16	LOUDSPEAKER, PERMANENT MAGNET, LS0454/U APPLICABLE TECHNICAL MANUAL: TM 11-5965-255-14P
TM17	TRUCK, UTILITY, HMMM, M1113 APPLICABLE TECHNICAL MANUALS: TM 9-2320-280-10, TM 9-2320-280-20P, TM 9-2320-280-20, TM 9-2320-280-34
TM18	TRAILER, CARGO, HMT-H APPLICABLE TECHNICAL MANUAL: TM 9-2330-392-14&P
TM19	TACTICAL COMMAND SYSTEM APPLICABLE TECHNICAL MANUALS: TM 11-5895-1617-12&P, TM 11-5895-1617-30&P, TM 11-5820-1164-12&P, TM 11-5820-1164-30&P

APPENDIX E New Equipment Training Plan

(V2 Plan not available)

APPENDIX F BOIP FEEDER DATA & QQPRI

TOTAL ASSET VISIBILITY SYSTEM
BASIS OF ISSUE PLAN FEEDER DATA
QUALITATIVE QUANTITATIVE PERSONNEL REQUIREMENTS INFORMATION

DATE: 01/23/01

MIS-CD: GSHBS2AF

SYS-DESC: TARGET ACQUISITION SUBSYSTEM

1. PRIME LIN DATA AND DPAMMH:

LIN: Z26254

GEN-NOMEN: TARGET ACQUISITION SUBSYSTEM: AN/TSQ-179(V)2

BOIP-NO: Z26254

TYPE-SUBMISSION: I

EST-TC-DT: 011015

SC: 7G RIC: B16

FUNDING-STATUS : FUNDED

EST-FUE-DT: 010615

SSN: BA108000GSA

ABA: P

EST-COST-PROD-MOD: 3800000

POL CONSUMPTION - RATE IDLEING : EQUIPMENT CATEGORY:
RATE CROSS COUNTRY : FUEL TYPE :
RATE SECONDARY ROADS:

POWER GENERATOR DATA:

VOLTAGE/PHASE - PREFERRED:

FREQUENCY - PREFERRED:

ALTERNATE:

FREQUENCY - ALTERNATE:

POWER MAXIMUM:

PRECISE POWER:

MEP NR:

PU NR:

PHYSICAL DATA

RATED PARAMETERS

TRANSPORT DATA

LENGTH (IN) : 539.00 HIGH TEMP (F) :
WIDTH (IN) : 88.00 LOW TEMP (F) :
HEIGHT (IN) : 105.00 ALTITUDE (FT) :
CUBE (CU FT): 2912.00 TEMP FOR ALTITUDE:
WEIGHT (LB) : 27800 START FACTOR :
DBA-7M :

MODE :
PER MODE:
CAPACITY :
MODEL :
FUEL :

AIRCRAFT TRANSPORTABLE - C130: Y C141: Y C5: Y (Y=YES, N=NO)

TRANSPORTER WT CAP LIMIT: TRANSPORTER CUBE CAP LIMIT:

REFERENCE: CGS AN/TSQ-179(V)1

NOTE:

POWER CONSUMER DATA:

VOLTAGE/PHASE - PREFERRED: 120VAC

FREQUENCY - PREFERRED: 50/60HZ

ALTERNATE:

FREQUENCY - ALTERNATE:

AMPERAGE DATA

PRECISE POWER REQUIRED (Y/N): N

START-UP KW : 9.900

RUNNING AMPS : 21.000

INRUSH FACTOR :

START-UP AMPS: 41.000

POWER FACTOR :

RUNNING KW : 5.100

RATED TEMPERATURE: 41

REFERENCE: AN/TSQ-179(V)1

NOTE: RATED TEMPERATURE IS 41 CELSIUS

EQUIPMENT USAGE AND MAINTENANCE MANHOUR DATA:

USAGE-PROF:	8720.0						
OCC-SPEC	L/U	UL	DS	GS	AVUM	AVIM	NOTES
-----	-----	-----	-----	-----	-----	-----	-----
33W	O	0.00	39.00	0.00	0.00	0.00	

BOIP ITEM DESCRIPTION (FUNCTIONAL CAPABILITY):

THE AN/TSQ-179 (V) 2 TARGET ACQUISITION SUBSYSTEM (ALSO REF. TO AS COMMON GROUND STATION OR CGS) PROVIDES SUPPORT TO ARMY FIELD COMMANDERS BY SIMULTANEOUSLY RECEIVING, PROCESSING, MANIPULATING, STORING, DISPLAYING AND DISSEMINATING INTELLIGENCE INFORMATION FROM MULTIPLE SENSORS AND INTELLIGENCE BROADCAST NETWORKS AND BY DISSEMINATING TARGETING AND INTELLIGENCE INFORMATION TO INTELLIGENCE, FIRE SUPPORT AND COMMAND AND CONTROL ELEMENTS FROM BRIGADE TO ECHELONS ABOVE CORPS (EAC) POWER SOURCE/REQUIREMENT = PRIMARY POWER 10KW 50/60 HZ GENERATOR, SECONDARY POWER 120/208VAC COMMERCIAL POWER

PRIME USE (NON-TECHNICAL):

THE CGS IS CAPABLE OF SIMULTANEOUS RECEPTION, PROCESSING AND DISPLAYING G OF DATA FROM MULTIPLE SURVEILLANCE SENSORS. THIS SYSTEM "VISUALIZES" THE ENEMY DEEP AREA OF INTEREST BY DISPLAYING INPUT INTELLIGENCE SOURCES ON AN ELECTRONIC MAP BACKGROUND. SENSORS DATA CAN BE INTEGRATED FOR INTELLIGENCE ANALYSIS TARGET TRACKING AND COMMAND REPORTING. SENSORS INCLUDE THE JSTARS RADAR; PROVIDING MOVING AND FIXED TARGET INDICATORS (MTI & FTI) AS WELL AS RADAR "PICTURES" (SYNTHETIC APERTURE RADAR AND THE UNMANNED AERIAL VEHICLE (UAV), WHICH PROVIDES REAL TIME VIDEO OF SELECT AREAS. THE CGS (V) 2 IMPROVED FEATURES INCLUDE ADVANCED IMAGERY CAPABILITY ALLOWS MULTI-SOURCE SIDS ANALYSIS VIA NATIONAL IMAGERY TRANSMISSION FORMAT (NITF) AND DISSEMINATION, MULTI-SOURCE VIDEO RECEIPT, IMAGE PRODUCT LIBRARY (IPL), IMAGE COMPRESSION, VIDEO CLIPS, RADAR SHADOW MASKING AND MISSION PLANNING AIDS, CUSTOMIZED DISPLAY THROUGH "PREFERENCES" AND TARGET ALERT (WATCH DOGS FROM TCTA PROGRAM) OPERATOR PROFICIENCY AND TRAINING CAPABILITY WAS ALSO IMPROVED THROUGH INTRODUCTION OF AN ABILITY TO SUPPORT BOTH LIVE MISSIONS AND SIMULATION SIMULTANEOUSLY.

2. BOIP COMPONENT MAJOR ITEM(S) (CMI) AND DPAMMH:

LIN	GEN-NOMEN						QTY/RATIO
-----	-----						-----
E08690	ENCRYPTION DECRYPTION EQUIPMENT: KIV 7 HI SPEED						1
USAGE-PROF:	.0						
OCC-SPEC	L/U	UL	DS	GS	AVUM	AVIM	NOTES
-----	-----	-----	-----	-----	-----	-----	-----
AAC	O	0.00	0.00	0.00	0.00	0.00	OP
S01563	SHELTER: NONEXPD LTWR MP RIGID - WALL S788 102LX84WX67H MTD HMMWV						1
USAGE-PROF:							
OCC-SPEC	L/U	UL	DS	GS	AVUM	AVIM	NOTES
-----	-----	-----	-----	-----	-----	-----	-----
44B	O	0.10	0.10	0.10	0.00	0.00	51

3. TOTAL DIRECT PRODUCTIVE ANNUAL MAINTENANCE MANHOURS FOR PRIME LIN Z26254

OCC-SPEC	UL	DS	GS	AVUM	AVIM	NOTES
AAC	0.00	0.00	0.00	0.00	0.00	OP
33W	0.00	39.00	0.00	0.00	0.00	
44B	0.10	0.10	0.10	0.00	0.00	51

4. ASSOCIATED SUPPORT ITEMS OF EQUIPMENT (ASIOE) AND DPAMMH:

LIN	GEN-NOMEN	RIC	LCC	LVL-USE	QTY/RATIO
A32355	ALARM CHEMICAL AGENT AUTOMATIC: PORTABLE MAN PACK M8A1	A12	A	UL	1:1
A79381	ANTENNA GROUP: OE-254()/GRC	B16	A	UL	2:1
C05541	CONTROL RECEIVER-TRANSMITTER: C-11561(C)/U	B16	A	UL	2:1
C68719	CABLE TELEPHONE: WD-1/TT DR-8 1/2 KM	B16	B	UL	3:1
C69541	CABLE TELEPHONE: WF-16/U	B16	A	UL	1:1
C89070	CAMOUFLAGE SCREEN SUPPORT SYSTEM: WOODLAND/DESERT	B16	A	UL	6:1
D78555	DATA TRANSFER DEVICE: AN/CYZ-10	B16	A	UL	1:1
E03028	ELECT KEY GEN DEDICATED LOOP ENCRYPTION DEVICE: TSEC/KG-84	B56	A	UL	1:1
E94970	CONTROL RADIO SET: C-2299/VRC	B16	A	UL	1:1
G74711	GEN SET: DED SKID MTD 10KW 60HZ	B16	A	UL	2:1
L84098	LOUDSPEAKER PERMANENT MAGNET: LS-454/U	A35	A	UL	1:1
M60449	MULTIMETER DIGITAL: AN/PSM-45	B64	A	DS	1:DS
R22666	RADIO FREQUENCY POWER TEST SET: AN/URM-213	B64	A	UL	1:DS
R30308	RECEIVER-TRANSMITTER: RT-1672/PSC-5	B16	A	UL	1:1
R55920	REEL CABLE: DR-8	A35	A	UL	1:1
R59160	REELING MACHINE CABLE HAND: RL-39	A35	A	UL	3:1

LIN	GEN-NOMEN	RIC	LCC	LVL-USE	QTY/RATIO		
S01373	SPEECH SECURITY EQUIPMENT: TSEC/KY-57	B16	A	UL	1:1		
S64488	SPEECH SCTY EQUIP DIGITAL SUBSCRIBER VOICE TERMINAL: TSEC/KY-68	B16	A	UL	1:1		
T07679	TRUCK UTILITY: HEAVY VARIANT HMMWV 4X4 10000 GVW W/E	AKZ	A	UL	1:1		
T31872	TELEPHONE WIRE WITH REEL: MX-10891/G	B16	A	UL	1:1		
T40405	TAPE READER GENERAL PURPOSE: KOI-18/TSEC	B16	A	UL	1:1		
T57382	TOOL KIT: ELECTRONICS MAINTENANCE TK-17	B16	A	DS	1:MOS		
T61630	TRUCK UTILITY: EXPANDED CAPACITY 4X4 W/E HMMWV M1113	AKZ	A	UL	1:1		
T95924	TRAILER CARGO: HIGH MOBILITY 1-1/4 TON	AKZ	A	UL	2:1		
W37483	TOOL KIT ELECTRIC EQUIPMENT: TK-101/GSQ	B16	A	UL	1:MOS		
Z19989	CAMOUFLAGE SCREENING SYSTEMS: ULTRA-LTWT RADAR SCATTERING GEN PURPOSE	B16	R	UL	6:1		
USAGE-PROF: .0							
OCC-SPEC	L/U	UL	DS	GS	AVUM	AVIM	NOTES
AAA	O	0.00	0.00	0.00	0.00	0.00	OP
Z24045	COMMAND SYSTEM TACTICAL: AN/USC-55	B16	R	UL	1:1		
USAGE-PROF: .0							
OCC-SPEC	L/U	UL	DS	GS	AVUM	AVIM	NOTES
31U	O	0.60	0.00	0.00	0.00	0.00	
33W	O	1.20	30.00	0.00	0.00	0.00	
35E	O	0.00	15.00	0.00	0.00	0.00	
Z54132	JTIDS COMSEC MODULE: KGV-8/TSEC	B56	R	UL	1:1		
USAGE-PROF:							
OCC-SPEC	L/U	UL	DS	GS	AVUM	AVIM	NOTES
35E	O	0.00	0.30	0.00	0.00	0.00	

Z56425 RADIO SET: AN/VRC-92F B16 R UL 1:1

USAGE-PROF: 2000.0

OCC-SPEC	L/U	UL	DS	GS	AVUM	AVIM	NOTES
31U	O	4.51	0.00	0.00	0.00	0.00	
35E	O	0.00	3.67	0.00	0.00	0.00	

Z59863 NAVIGATION SET: GPS RE B16 R UL 1:1
CEIVER

USAGE-PROF: 6570.0

OCC-SPEC	L/U	UL	DS	GS	AVUM	AVIM	NOTES
31U	O	0.31	0.00	0.00	0.00	0.00	
35E	O	0.00	0.32	0.00	0.00	0.00	

5. ITEMS TO BE REPLACED AND THEIR ASSOCIATED SUPPORT ITEMS OF EQUIPMENT:

LIN	GEN-NOMEN	COMPLETE/IN PART	REC-TYP-CL
C05701	MONITOR CHEMICAL AGENT:	COMPLETE	O
T07679	TRUCK UTILITY: HEAVY VARIANT HMM WV 4X4 10000 GVW W/E	IN PART	O
Z17435	TARGET ACQUISITION SUBSYSTEM: AN /TSQ-179(V)1	COMPLETE	O

6. APPROVED REQUIREMENTS DOCUMENTS:
JOINT SURVEILLANCE ATTACK RADAR SYSTEM (JOINTSTARS) COMMON GROUNDSTATION AP
PROVED DATE: 02 AUG 99, ORD

CARDS-NO: 1596

7. NUMBER DIRECT OPERATORS REQUIRED TO CREW OR OPERATE THE PRIME LIN:

QTY	DUTY POSITIONS	RECOMMENDED MOS
6	CGS OPERATOR	96H

8. UNIQUE DUTIES, TASKS AND CHARACTERISTICS NOT LISTED IN AR 611-201:
NONE

9. NET PLAN NUMBER AND TRAINING BASE REQUIREMENTS:

NET PLAN NUMBER: CEC90005
NET TRAINING:
TRADOC SUSTAINMENT TRAINING

10. REMARKS:

THE CONFIGURATION SPECIFIED UNDER THE AN/TSQ-179(V)1 CONFIGURATION HAS BEEN REVISED. BASED ON CONTINUED PROBLEMS AND DELAYED RESOLUTIONS WITH THE HMT, A GENERAL OFFICER (GO) SUMMIT WAS CONVENED ON 25 FEB 00, WITH A FOLLOW-UP MEETING ON 27 MAR 00. THE PURPOSE OF THE SUMMIT WAS TO DETERMINE THE FUTURE OF THE HMT IN THE ARMY. THE RESOLUTION OF THE SUMMIT PARTICIPANTS WAS TO MAINTAIN THE HMTS IN STORAGE UNTIL ALL CORRECTIONS HAVE BEEN INCORPORATED AND FULL MATERIEL RELEASE CAN BE ACHIEVED. THIS DECISION ELIMINATED THE HMT FROM CONSIDERATION AS PART OF THE CGS CONFIGURATION. PM COMMON GROUND STATION (CSG) HAS REVISED THE CONFIGURATION SUCH THAT IT NOW CONSISTS OF ONE SHELTERIZED HMMWV MISSION VEHICLE, ONE HMMWV SUPPORT VEHICLE, AND ONE HMMWV CARGO VEHICLE. THIS 3-HMMWV CONFIGURATION WILL BE FIELDDED WITH A POWER UNIT. MAINTENANCE ENGINEER, NAME, PHONE #, E-MAIL GARY LIVERO, 427-4441, GARY.LIVERO@IEWS.MONMOUTH.ARMY.MIL
R&DTE PROJECT: N/A
R&DTE NUMBER: N/A

NDI CAT: 2

CCI STATEMENT (CONTROLLED CRYPTOGRAPHIC ITEM): N/A

MAINTENANCE CONCEPT: 3 LEVELS.

OP/UL: FAULT ISOLATE TO THE LRU USING BIT/BITE, REPLACE LRU, FORWARD LRU TO DEPOT/CONTRACTOR FOR REPAIR.

DS: PROVIDE DS MAINTENANCE CONTACT TEAM FOR ON-EQUIPMENT REPAIR.

DEPOT/CONTRACTOR: PERFORMS TOTAL REPAIR.

TMDE INDEX NUMBER: NONE

CTA NUMBER: NONE

PAST TC/FUE DATES EXPLANATION: N/A

MOS/TOOL KIT BREAKDOWN: N/R

NON LIN ASIOE:

NSN/PN	NOMENCLATURE	RATIO
5985-01-297-2971	ANTENNA AS-3900	2:1
5810-01-066-7587	FILL CABLE	1:1
5985-01-372-0114	IMPROVED DATA MODEM	1:1
5820-01-291-5415	RADIO SET AN/VRC-83	1:1
5975-01-188-8873	MOUNT BASE MT-6352/VRC	1:1
5820-01-220-7901	MOUNT BASE MT-6429/VRC	1:1
5180-01-108-1729	MAINTENANCE KIT, M273	1:1
5965-01-457-9410	HEADSET-MIC	3:1
6665-01-016-8399	DETECTOR KIT CHEM M256A1	1:1
4240-01-231-6515	GPFU M-93	1:1
7025-01-461-1481	DIGITIZER	1:1
4230-01-101-3984	DECONTAMINATION KIT: M258A1	1:1
X494/C6	MOUSE, MECHANICAL	3:1
5895-01-447-1073	MONITOR 19"	2:1
5815-01-425-7036	STU III FAX	1:1
5985-01-425-7312	SATCOM HEMI	1:1
5810-01-447-8311	STU III PHONE	1:1
5975-01-235-1962	MOUNTING BASE MT-6353	1:1
5985-01-175-9853	AMPLIFIER, LINERAR AM-7175/URC	1:1
5820-01-151-9914	CONTROL MONITOR C-11291	1:1
5985-01-425-5588	ANTENNA: LOS	2:1
5836-01-459-5016	VIDEO CASSETTE RECORDER	1:1
A3254989SE E4500	SERVER	1:1
5985-01-335-2587	SATCOM ANTENNA, DIRECTIONAL	2:1
5895-01-457-9407	TACTICAL CMD INTER MODULE	1:1
A3263002	UNINTER POWER SUPPLY/200TRX	1:1
4310-01-459-5015	CISCO FAST HUB, WS-C108T	2:1
7025-01-390-4996	DISPLAY UNIT, REMOTE	1:1
7021-01-457-7112	DIGITAL, COMPUTER	1:1
5998-01-433-0895	ANTENNA,SCDL	1:1
5836-01-457-9424	VIDEO PRINTER, COLOR	1:1
A32549898-001	RECORDER-REPROD	1:1
DOXWT1TP6-ZRC-5640-A	RAID CONTROLLER	2:1
A3254586	ASSEMBLY/DIGITAL	1:1
5895-01-457-9423	DATA KEYBOARD	2:1
7050-01-459-3045	ENCODER-COUPLER	1:1
A32547159G1	INTERFACE MODULE	1:1
A3263217	ARL, ANTENNA MAST	1:1
A32549889-001	RECORDER-REPROD	1:1
7050-01-459-3045	ENCODER-COUPLER	1:1
5985-01-459-3042	MAST	1:1
7025-01-433-8741	PRINTER, TEXT	1:1
5985-01-460-0556	RADIO INTERFACE MODULE	1:1
	RATIO	
COMMON TOOLS:	GU	1:1
ADAPTER, SOCKET		5120-00-227-8095
BIT, SCREWDRIVER		5120-01-367-3499
BIT SCREWDRIVER		5120-01-367-3497
CORD, EXTENSION		6150-01-306-4312
FUSE PULLER		5120-00-224-9456
GLOVES, LEATHER		8415-00-634-4658
HEX HEAD DRIVE SET		5120-01-187-8434
HEX SOCKET DRIVE SET		5120-01-018-8956
LAMP EXTENSION		6230-00-140-1165
PLIERS, ADJUSTABLE		5120-00-781-0820
SCRWDRVR, CORDLESS		5130-01-306-8384
SCRWDRVR, SIX PT TIP		5120-01-168-1132
SQUARE DRIVE ADAPTER		5120-01-069-3004
STRAP, ELECTROSTATIC		4240-01-165-8865
STRAP, ELECTROSTATIC		4240-01-165-8866

WRENCH BOX & OPEN	5120-00-288-9997
WRENCH, OPEN END	5120-00-169-5776
WRENCH, TORQUE	5120-00-943-0941
SPECIAL TOOL:	
WRENCH DOUBLE OPEN	GU 1:1 5120-01-335-1176
COMMON TOOLS	
ADAPTER, CON	DS 1:1 5935-01-056-6282
ADAPTER, CONNECTOR	5935-00-739-2242
ADAPTER, SOCKET 3/8	5120-00-227-8095
BIT, SCREWDRIVER, 3/16	5120-01-367-3499
BIT, SCREWDRIVER	5120-01-367-3497
CORD, EXTENSION	6150-01-306-4312
DRILL, PORTABLE	5130-00-283-3231
GLOVES, LEATHER	8415-00-634-4658
HEATER, GUN TYPE	4940-00-785-1162
HEX HEAD DRIVE SET	5120-01-187-8434
LAMP EXTENSION	6230-00-140-1165
PLIERS, ADJUST	5120-00-781-0820
SCRWDRVR, CORDLESS	5130-01-306-8384
SET, TWIST DRILL	5133-00-618-7783
STRAP, ELECTROSTATIC	4240-01-165-8865
STRAP, ELECTROSTATIC	4240-01-165-8866
T-HANDLE DRIVE	5120-01-355-1858
WRENCH, BOX AND OPEN	5120-00-892-6089
WRENCH, BOX AND OPEN	5120-00-228-9517
WRENCH, BOX AND OPEN	5120-00-203-4802
WRENCH, OPEN END 8 IN	5120-00-169-5776
WRENCH, OPEN END 9/16	5120-00-184-8555
WRENCH, TORQUE 0-100	5120-00-943-0941
WRENCH, TORQUE SOCKET 1/2 DR	5120-01-042-0982
SPECIAL TOOL:	
WRENCH DOUBLE OPEN END 5/16	DS 1:1 5120-01-335-1176

NEXT MILESTONE: APPROVED MILESTONE III ACHIEVED DATE: AUGUST 2000

ALL OTHER EXPLANATIONS:

OP/UL WILL UTILIZE BIT/BITE TO FAULT ISOLATE TO THE LRU.

MOS 96H IS AN OPERATOR/MAINTAINER AND WILL PERFORM 16 HOURS OF DPAMMH PER YEAR

CECOM BOIPFD REVIEWER IS: GARY D. CHAMBERS, AMSEL-LC-LEO-E-EQ FORT MONMOUTH
NJ 07703 DSN 992-3129 EMAIL: GARY.CHAMBERS@MAIL1.MONMOUTH.ARMY.MIL

REFERENCE NON LIN ASIOE PARAGRAPH (4)

NSN/PN	NOMENCLATURE	LVL-USE	QTY/RATIO
5820-01-437-1091	RADIO SET:AN/TSQ-179(V)2UL		1:1
01-P59210J001	IMAGERY WORK STATION-BRIGADE(IWS-B)		1:IBCT

NOTE: THE IWS-B WILL BE FIELDDED WITH THE CGS V2 TO INTERIM BRIGADE COMBAT TEAMS ONLY.

NOTE DESCRIPTION

OP MAINTAINED BY OPERATOR-NO MAINTENANCE REQUIRED.

51 FOR MOS 44B CALCULATIONS, USE THE TABLES IN SECTION 7-4 OF THE FMBB.

11. DEVELOPER IDENTIFICATION DATA:

MATERIEL DEVELOPER NAME, ADDRESS, OFFICE SYMBOL AND DSN:

PM CGS/JTT, BLDG 550 FORT MONMOUTH, NJ, 07703 SFAE-IEW&S-JS/JTT,
FORT MONMOUTH, NJ 07703 (COL RONALD NELSON, 732-427-5165)

BOIPFD PREPARER NAME, ADDRESS, OFFICE SYMBOL AND DSN:

CAROLINE R. MCCARTHY, AMSEL-LC-IEW&S-JS/JTT. FT MONMOUTH, NJ 07703
DSN 987-4438, CAROLINE.MCCARTHY@IEWS.MONMOUTH.ARMY.MIL

QQPRI PREPARER NAME, ADDRESS, OFFICE SYMBOL AND DSN:

FRANK MCGAYHEY, DSN: 922-3682, CDR CECOM, AMSEL-LC-RE, FT. MONMOUTH, NJ 07703
EMAIL:FRANCIS.MCGAHEY@MAIL1.MONMOUTH.ARMY.MIL

COMBAT DEVELOPER NAME, ADDRESS, OFFICE SYMBOL AND DSN:

U.S. ARMY INTELLIGENCE CENTER, ATZS-JS, FORT HUACHUCA, AZ, 85613, COL BOND
DSN 821-3605

APPENDIX G Warranty Provisions

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

WARRANTY PROGRAM
FOR
JOINT STARS COMMON GROUND STATION (CGS)
TARGET ACQUISITION SUBSYSTEM AN/TSQ-179(V)2

Headquarters, Department of the Army, Washington DC
24 January 2001

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this bulletin. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: US ARMY CECOM, ATTN: AMSEL-LC-IEW-C-JS, FORT MONMOUTH, NJ 07703. A reply will be furnished to you.

This publication is required for official use or for administrative or operational purposes only. Distribution is limited to U.S. government agencies and their contractors. Other requests for this document must be referred to: US ARMY CECOM, ATTN: AMSEL-LC-IEW-C-JS, FORT MONMOUTH, NJ 07703.

1. General.

This warranty is consistent with the requirements of DFARS 246.770-2. It covers all contractor-furnished Common Ground Station (CGS) equipment and software and the integration and installation of GFE into the contractor-furnished equipment, but does not extend to the GFE itself. This warranty includes hardware and software used in the CGS whether or not developed and/or accepted under previous contracts. The duration of the warranty for each hardware item delivered (including software) is five (5) years from the date of original Government acceptance. The manufacturer's warranties on nondevelopmental items (NDI) used in the CGS are provided at no additional cost to the Government.

NOTE: Motorola, Inc., Warranty Office provides 7 day, 24 hour claims support:

a. via telephone: DSN 361-6973 or (888)898-4187 (staffed 0800 - 1600 MST, on non-holiday weekdays; automatic pager notification is provided to Warranty Office staff of critical issues around the clock via Warranty Office Voicemail)

b. via e-mail: support1@email.mot.com

c. via fax: (480)441-7856

2. Explanation of Terms.

2.1 "Acceptance" as used in this clause means the execution of an official document (DD Form 250) by an authorized representative of the Government by which the Government assumes for itself, or as an agent of another, ownership of existing and identified supplies, or approves specific services rendered, as partial or complete performance of the contract (number DAAB07-96-C-S204).

2.2 "Correction" as used in this clause means the elimination of defects.

2.3 "Defect" as used in this clause, means any condition or characteristic of specific identified supplies furnished by the contractor under the contract, that is not in compliance with the requirements of the contract.

2.4 "Supplies" as used in this clause, means the systems and spares for both the baseline and options, excluding Government Furnished Property, which are incorporated in the deliverable items in Section B of the contract.

3. Coverages.

3.1 Specific

Notwithstanding inspection and acceptance by the Government of the supplies delivered under the contract or any provision of the contract concerning the conclusiveness thereof, the contractor warrants for a period of five years (5) after the date of Government Acceptance, that the supplies:

- a. will conform to the design and manufacturing requirements specifically delineated in the contract and any amendments thereto as verified by the approved Acceptance Test. Design and manufacturing requirements include all structural and engineering plans and manufacturing particulars, including precise measurements, tolerance, materials, process and finished product test for the supplies;
- b. will be free from all defects in material and workmanship at the time of acceptance by the Government (as evidenced by a signed DD250);
- c. will conform to the essential performance requirements of the contract and any amendment thereto as verified by the approved Acceptance Test, and will continue to perform in accordance with these requirements for the full length of the warranty period specified herein. The essential performance requirements that are covered under the warranty are identified below.

3.2 Operating Capabilities.

The AN/TSQ-179(V)2 system specification, JA-SS-2020-001, requires the following functional and operational capabilities, as a minimum:

- a. A "windows-like" Graphical User Interface (GUI)
- b. Storage, retrieval, display and manipulation of all sensor data, message data and files.
- c. Independent display on each operator display of:
 - (1) Joint STARS MTI, FTI and SAR imagery.
 - (2) Correlated Intelligence Broadcast Network (IBN) data in the form of icons, error ellipses and track history. This shall include display of Fixed, Fixed-Mobile, and Moving IBN data.
 - (3) Hunter UAV video and graphical telemetry data.
 - (4) Secondary Imagery Dissemination (SID) imagery and data.
 - (5) Apache Longbow MTI
 - (6) All incoming and outgoing messages.
 - (7) Electronic map backgrounds from DMA products.
 - (8) Predator UAV video and graphical telemetry data
 - (9) ARL MTI, SAR and EO/IR video and graphical telemetry data
 - (10) U-2 EMTI.
- d. Simultaneous, asynchronous, receipt, storage and display of sensor data from multiple sensors and intelligence broadcast networks on each operator display.
- e. Simultaneous display of data from multimode sensors with each mode being displayed in a separate window with other sensor data or in a window by it's self or any combination of sensor data as selected by the operator. Synchronization of data from multiple sources in time and display scales shall be provided in order to maintain spatial relationships.
- f. Correlation of Intelligence Broadcast Network (IBN) data.
- g. Printout of sensor and message data.
- h. Tools for manipulating on-screen data including: generation of graphical overlays; zoom and scroll; single frame, time compression and time integration of imagery data; manual and software assisted target tracking; target pick and hook; and message auto fill.
- i. System management and Built-In Test (BIT) tools.

- j. Display of sensor positions.
- k. Coordinate conversions.
- l. Access to detailed display of sensor, intelligence broadcast, message data and telemetry.
- m. Overlay of sensor, map and graphical overlays.
- n. Digitization of paper maps.
- o. Target file management.
- p. Radio and phone voice communications among CGS operators, E-8 Joint STARS aircraft, GSM operators and other Army command and control systems.
- q. Intercom voice communications among CGS operators.
- r. (CSB) Transfer of all or designated portions of the CGS data base to other Systems using the CSB.
- s. (CSB) Transfer of messages among interconnected CGSs or any systems using the CSB.
- t. Multi-Image Exploitation Tools
 - u . Mission Planning and post analysis tools including; generation of statistical overlays of mission data; entry and graphical depiction of sensor coverage areas and times, time based graphical depiction of the events contained within the mission
 - v . Graphical display of the orbit and ground reference coverage area for imagery sensors to include the E-8C.
 - w. Receipt, processing, and display of tracks from other tactical networks to include JTIDS and Launch Messages.
 - x. Electronic office products to include a word processor, presentation generator, and spreadsheet capability.
 - y. Request imagery from external image product archives and libraries.
 - z. Ability to generate screen shots or modify image files and store them in a GIF, TIF, JPEG, BMP file format.
 - aa . Ability to display coordinate information in a Lat/Long decimal form
 - ab . Save and restore window settings to include center location and zoom-scale.
 - ac . Graphics symbol builder allowing the creation and storage of new symbols
 - ad. Graphical tool for finding TI Data, Target Tracks, SIGINT Tracks, and Templated Messages by time and location.
 - ae. Region based data filtering to include filtering for MTI and track parametrics
 - af. Provide display of COMINT information regardless of availability of location information
 - ag. Provide a Radar Shadow Analysis tool for computing and displaying low level line of sight calculations
 - ah. Tools to assist in workload management include window and region based data and alert filtering for MTI, SIGINT data, and target tracks.

3.3 Maintenance Characteristics.

The following are the maintenance characteristics for the CGS:

- The mean-time-to-repair at the unit level will be 30 minutes or less.
- The mean-time-to-repair at the direct support level will be 1 hour or less.

3.4 Reliability and Availability Characteristics.

The following are the reliability characteristics for the CGS:

- The minimum mean-time-between-failure is 158 hours, at an 80% confidence level. This includes all hardware failures (except GFP) and software failures that result in the loss of a performance or interface requirement.
- The minimum operational availability is 0.80, which includes all hardware failures (except GFP) and software failures that result in the loss of an essential performance requirement.

4. Contractor Responsibilities.

4.1 The contractor's warranties under this clause shall apply only to those defects discovered by either the Government or the contractor during the period specified in Section 3.0 above.

4.2 The contractor, notwithstanding any disagreement regarding the existence of, or responsibility for, a defect, shall within thirty (30) days of receipt of the defective material (critical item[s] within three days of failure or, if available, pulled from government bond and shipped to the requesting location within 24 hours of depot notification), or longer period as may be mutually agreed upon, and after Contractor/Government verification of the defect, make repairs, replacements or redesign as are necessary to achieve the specified requirements, at no increase in the contract price. If it is later determined that an alleged defect is not subject to these warranties, the contract price will be equitably adjusted in accordance with Section 4.6 of this clause.

4.3 If the contracting officer determines that a defect exists in any of the supplies accepted by the Government under the contract which have not been returned to the contractor, the Contracting Officer or his designated representative shall notify the contractor in writing within thirty (30) days after discovery of the defect.

a. After receipt of notification from the Contracting Officer or his designated representative of the existence of a defect in accepted supplies, the contractor shall submit to the Contracting Officer, in writing, within thirty (30) days, a recommendation for corrective action, together with supporting information.

b. Within thirty (30) days after receipt of the contractor's recommendations for corrective action and adequate supporting information, written notice of approval or disapproval of Contractor's recommendation.

4.4 In the event of timely notice of a decision not to correct or only to partially correct a defect covered by the warranty, the contractor shall submit a technical and cost proposal within thirty (30) days to amend the contract to permit acceptance of the nonconforming supplies or services in accordance with the revised requirements, and an equitable adjustment in the contract price shall promptly be negotiated by the parties and be reflected in a supplemental agreement to the contract.

4.5 The contractor shall be liable for the reasonable cost of disassembly and/or reassembly of larger items when it is necessary to remove the supplies to be inspected and/or returned for correction or replacement.

4.6 If the Government returns supplies to the contractor for correction or replacement and the contractor determines that the defect is not covered by the warranty or is not verified and the Government has agreed with these actions, the Government shall be responsible for all contractor cost directly associated with the correction or replacement of the defective supplies. The contractor shall submit a cost proposal to the Government for all costs incurred and an equitable adjustment shall be promptly negotiated by the parties and be reflected in a supplemental agreement to the contract.

4.7 The contractor shall maintain a record of all warranty actions and make that list available for Government review upon request.

4.8 The contractor is authorized to use, as rotatable stock, the Government property returned from the field, repaired and reinstalled into new CGS system(s). The warranty period of a replacement item for returned Government property will be the remaining warranty period of the CGS in which it is installed. Similarly, the warranty period of the returned and repaired Government property will be the remaining warranty period of the CGS in which it is subsequently installed.

5. Government Responsibilities/Identification.

5.1 In the event the supplies fail to meet the terms of the above warranties, the Contracting Officer may:

- a. Require the contractor to promptly take the necessary corrective action (e.g. repair, replace, and/or redesign) at no additional cost to the Government. Redesign as a remedy shall be available until operational use, operational testing, or a combination of operational use and operational testing has demonstrated that the warranted item's design has satisfied the essential performance requirements.

- b. Require the contractor to pay costs reasonably incurred by the Government in taking necessary corrective action, or

- c. Equitably reduce the contract price.

5.2 The rights and remedies of the Government provided in this clause:

- a. Shall not be affected in any way by any term or conditions of the contract concerning the conclusiveness of inspection and acceptance;

- b. Are in addition to, and do not limit any rights afforded to the Government by any clause of the contract;

- c. Shall survive final payments; and

- d. Disputes arising under this clause will be resolved in accordance with the dispute clause of the contract.

5.3 In no event shall the Government be responsible for any extension or delays in the scheduled deliveries or periods of performance under the contract as a result of the contractor's obligation to correct defects, or non-performance as a result of the correction of defects unless provided by a supplemental agreement with adequate consideration.

5.4 This clause shall not be construed as obligating the Government to increase the contract price.

5.5 The Contracting Officer shall give the contractor a written notice specifying any failure or refusal of the contractor to:

a. Present a detailed recommendation for the corrective action as required by Section 4.3(a) of this clause;

b. Correct defects as directed under Section 4.2 of this clause.

5.6 The notice shall specify a period of time following receipt of the notice by the contractor in which the contractor must remedy the failure or refusal specified in the notice.

6. Design/Performance Specifications.

Performance specifications and verification requirements are detailed in JA-SS-2020-001, the system specification for the Joint STARS CGS. Warranted operating capabilities, maintenance characteristics, and reliability characteristics are specified in paragraphs 3.2 through 3.4 above.

7. Nullification.

6.1 The guarantee provisions of this clause do not apply to combat damage, or if the item was subjected to physical, environmental, or operational abuse, or if without contractor consent the item was subjected to tampering, disassembly or repair, or if it was treated in noncompliance with contractor supplied support, maintenance or provisioning data.

6.2 These warranties will not, in any way, be voided by the Government performed repairs, accomplished in accordance with standard Military Service maintenance procedures, of any item or component thereof, covered by these warranties.

6.3 The warranty provisions of this clause do not cover liability for loss, damage, or injury to third parties, nor do they cover consequential damages.

6.4 All implied warranties of merchantability and "fitness for a particular purpose" are excluded from any obligation under the contract.

8. Claim Procedures.

There are no special warranty claim procedures. Units shall submit requests for supply of warranted items in the same manner as non-warranted items (i.e., submit all requests for supplies, regardless of source of supply, to the specific supply support activity that supports the unit for the class of supply requested). AR 710-2 (Inventory Management Supply Policy Below the Wholesale Level), PAM 710-2-1 (Using Unit Supply System [Manual Procedures]), and PAM 710-2-2 (Supply Support Activity Supply System: Manual Procedures) provide supply regulations and procedures.

9. Storage/Shipment/Handling.

Supplies returned to the contractor for correction or replacement under this warranty will be shipped and returned via Government Bill of Lading (GBL). The ACO will track GBL shipping and return costs and the contract price will be reduced by those costs in accordance with contract clause H-20. All returned items shall be packed and packaged in a manner that will prevent damage from moisture, shock, and vibration during shipping.

APPENDIX H CGS System Support Package
(Available Under Separate Cover)

APPENDIX I Key Management Plan
(Available Under Separate Cover)